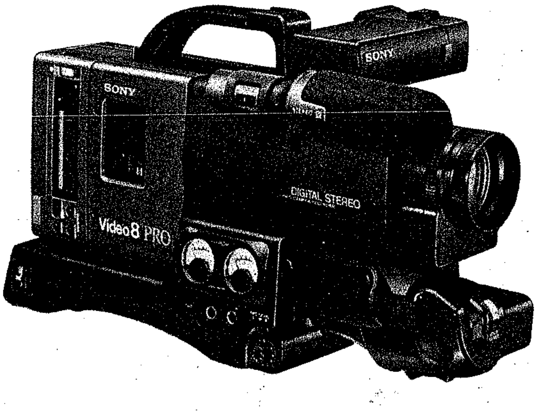
CCD-V200/V220

SERVICE MANUAL

US Model

Canadian Model
CCD-V220

E Model
CCD-V200



Video 8
PRO

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Standard: Rotary head, FM system (monaural) PCM: PCM system (2 channels)
Video signal	NTSC color, EIA standards
Usable cassette	8mm video format cassette
Tape speed	SP: Approx. 1.43 cm/sec. LP: Approx. 0.72 cm/sec. (playback only)
Recording or playback time	SP: 2 hours (P6–120) LP: 4 hours (P6–120) (playback only)
Fast forward time	Approx. 4 min. (P6–120)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electric viewfinder (0.7″ black and white)
Lens	Combined 8 × power zoom lens, variable zooming speed (approx. 6 to 11 sec.) f = 11–88 mm, F1.2 with macro Filter diameter: 52 mm
Auto focus system	Infrared autofocus
Colour temperature	Preset values: ☀ 5,800 K 💡 3,200 K Auto: From the light at a tungsten lamp to the light on a slightly overcast day.
Minimum illumination	3 lux (F1.2), (0.3 footcandles)
Illumination range	3 lux–100,000 lux (0.3–9,294 footcandles)
Recommended illumination	More than 300 lux (28 footcandles)
Aperture correction	Automatic, manual (variable)

PCM

Sampling frequency	31.5 kHz
Audio frequency	20–15 kHz
Dynamic range	More than 85 dB
Wow and flutter	Less than 0.005% RMS

Input and output connector

Input	Video input phono jack 1, 1 Vp-p, 75 ohms unbalanced, sync negative Audio input phono jack 2 (stereo), −10 dBs, input impedance more than 47 kilohms
Output	Video output phono jack 1, 1 Vp-p, 75 ohms unbalanced, sync negative Audio output phono jack 3 (stereo and monaural) −10 dBs, output impedance less than 2.2 kilohms
Headphones jack	Stereo minijack, 8-ohm impedance
Microphone jacks	External microphone jack: phone jack −66 dBs low impedance Narration microphone jack: minijack
Accessory jacks	Video input: miniphono, 1 Vp-p, 75 ohms unbalanced, sync negative Video output: miniphono, 1 Vp-p, 75 ohms unbalanced, sync negative
Remote connector	5-pin connector

— Continued on next page —

8 VIDEO CAMERA RECORDER

SONY®

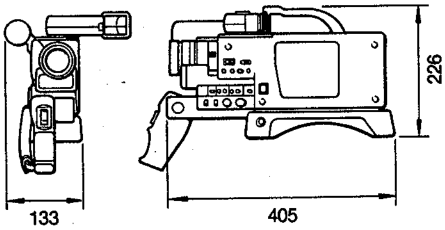
MICROFILM

Display in the viewfinder

Mode and caution indication	Small 14 characters × 2 lines
Main title indication	Large 10 characters × 2 lines, 7 colours selectable
Sub title indication	Small, 6 + 8 characters, 7 colours selectable
Date or time indication	Small 8 characters Date: From 1 Jan. 1986 to 31 Dec. 2015 Time: 12 hour cycle
Clock	Crystal lock
Memory back-up	Approx. 2 years using the CR2025 lithium battery

General

Power requirements	Battery compartment 6 V/8.5 V
Power consumption	8.3W (camera recording) including the viewfinder
Installation	Horizontally, vertically
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Dimensions	Approx. 133 × 226 × 405 mm (w/h/d) ($5^1/_4$ × 9 × 16 in.)



Weight	Approx. 3 kg (6 lb 10 oz) excluding the battery and cassette Approx. 3.3 kg (7 lb 4 oz) including the battery and cassette
Microphone	Electret condenser microphone, uni-directional stereo type
Narration microphone	Electret condenser microphone, non-directional monaural type

Accessories supplied

Shoulder strap (1)
Lithium battery (1)
Connecting cord (phono 3–phono 3) (1)
Ear receiver (1)
Contact guards* (12 for phono jacks, 2 for ϕ6.5mm phone jacks, 2 for ϕ3mm minijacks)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED-LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

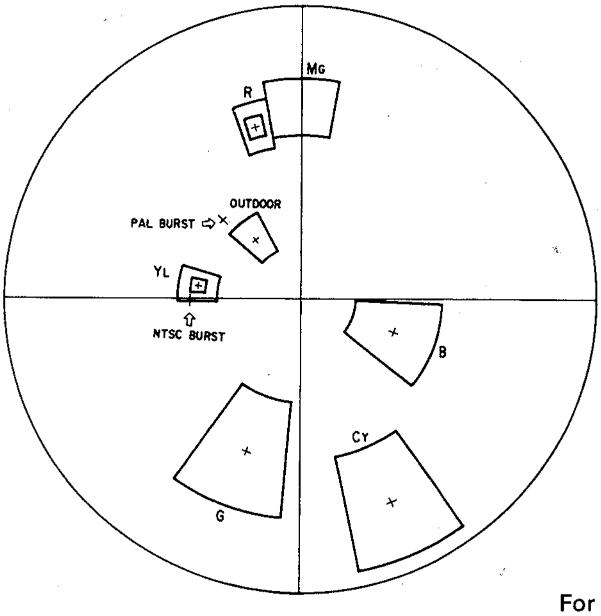
ATTENTION AU COMPOSANT AYANT RAPPORT A LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES REGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNMENT SONT IDENTIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT REMPLACÉS OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.

SAFETY CHECK-OUT

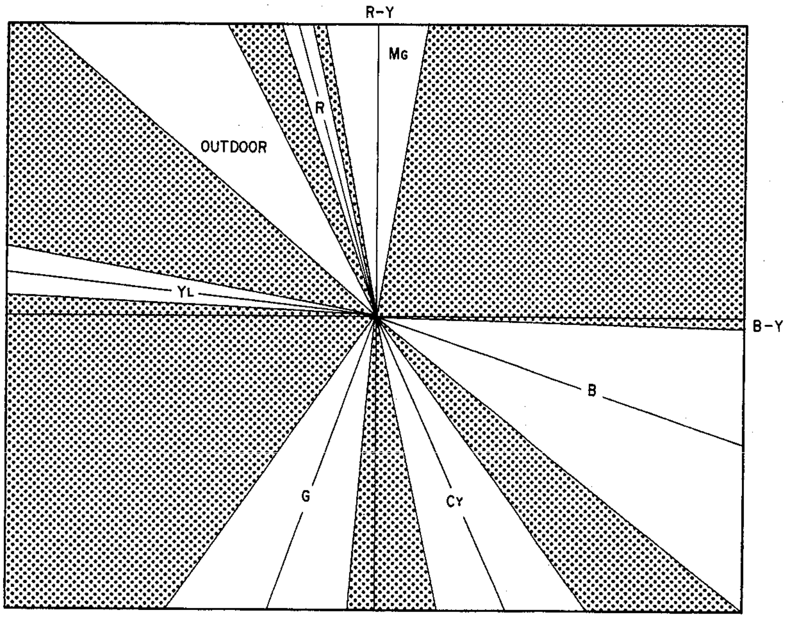
After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.



MG
R
OUTDOOR
PAL BURST
YL
NTSC BURST
B
CY
G

For Vectorscope



R-Y
MG
R
OUTDOOR
YL
B-Y
B
G
CY

For Oscilloscope

CCD-V200/V220/V200E

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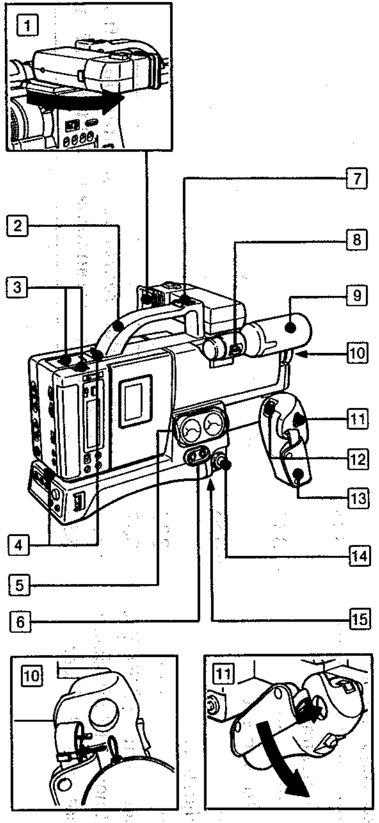
The color reproduction standard frame is contained after the arrangement diagram of adjustment parts.

SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF PARTS AND CONTROLS

A-1



A-1

1 **Viewfinder**
The picture being recorded or played back can be monitored in monochrome through this viewfinder. Data such as the tape counter, function mode, caution indicators, recording title, date, time, are also displayed on the viewfinder screen.

2 **Handle**

3 **Battery compartment and battery eject switch**
Insert a battery pack, AC pack or DC pack.

4 **Hooks for shoulder strap**

5 **PCM LEVEL METERs and lamp**

6 **MIC (external microphone) jacks (phone)**

7 **Accessory shoe**
Attach an optional external microphone, video light, etc.

8 **LOW CUT FILTER switch**
To cut wind noise, etc., set to ON.

9 **Built-in stereo microphone**

10 **Lens cap**

11 **Release button**
Press to unlock the hand grip when adjusting the grip position.

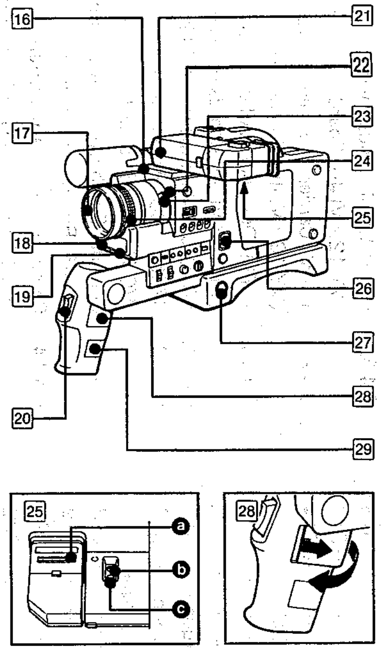
12 **START/STOP button**
Press to start or stop camera recording.

13 **Hand grip and grip strap**

14 **REC (recording) LEVEL controls**
Adjust the volume of the external stereo microphone or the signal from the AUDIO IN jack.

15 **Tripod receptacle**

A-2



A-2

16 **White balance sensor**
This is the sensor for the auto white balance adjustment. Be careful not to cover it.

17 **Lens hood**

18 **Infrared beam detector**
The infrared beam reflected from the object to be shot is received here during auto focusing.

19 **Infrared beam emitter**
Transmits an infrared beam toward the object to be shot during auto focusing. Do not look into it for a long time when recording with auto focusing.

20 **Power zoom button**
Press for smooth power zooming between wide-angle (W) and telephoto (T) positions.

21 **Camera recording/battery lamp**
Lights during camera recording. It blinks when the battery is exhausted.

22 **Macro set button**
Keeping this button depressed, move the manual zoom lever within the MACRO range for close-ups.

23 **Manual zoom lever**

24 **Focus ring**
For manual focusing, turn this ring to focus while looking through the viewfinder.
This ring will be turned automatically during auto focusing.

25 **Bottom of the viewfinder**
ⓐ **Viewfinder lens adjustment lever**
Adjust to your eyesight to assure good focus.
ⓑ **Focus control screw**
ⓒ **Brightness control screw**
Normally, there is no need to adjust these screws. Adjust only when the picture is not displayed clearly.

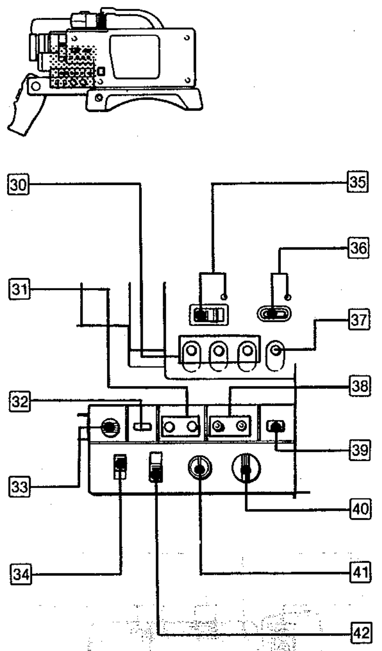
26 **NARRATION MIC (microphone)**

27 **PUSH TO NARRATE button**

28 **Utility compartment**
Insert the ear receiver, etc.

29 **Lithium battery compartment**

A-3



A-3

30 **TITLE +/– buttons and NEXT button**
Used to set the color and characters of the title, date, time, and color of the wiper.

31 **DATE and TIME buttons**
Press to display or turn off the date or time.

32 **FADER/WIPER button**
Press to select the fader, wiper or normal mode.

33 **PUSH AUTO button**
Keep it depressed to activate the auto focusing if in the manual focusing mode.

34 **FOCUS switch**
Normally set to AUTO for the auto focusing. To focus manually, set to MAN (manual).

35 **CAMERA POWER switch and lamp**
Used to turn on and off the camera section.

36 **INTERVAL REC (recording) button and lamp**
Press to activate the automatic interval recording function. The lamp lghts during interval recording.

37 **CLEAR button**
Press to clear the preset main or sub title.

38 **TITLE MAIN and SUB buttons**
Press to display or turn off the main and sub titles.

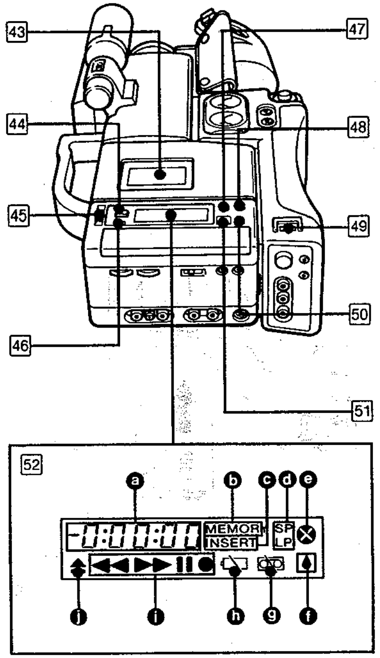
39 **REC REVIEW (recording review) button**
Press to play back the end of the previously recorded part for several seconds.

40 **SHUTTER speed control**
Used to select the shutter speed.

41 **IRIS control**
Normally set to AUTO.

42 **WHITE BAL (white balance) switch**
Normally set to AUTO for the auto white balance adjustment. Set it to ☀ (outdoors) or 💡 (indoors) according to lighting conditions.

A-4



A-4

43 **Cassette compartment**

44 **VTR POWER switch and lamp**
Used to turn on and off the video recorder section.

45 **≜ (cassette eject) switch**

46 **COUNTER (tape counter) selector**
Set to "1" for "0:00:00" counter. Set to "2" for "0000" counter.

47 **RESET button**
Press to reset the counter to zero.

48 **MEMORY button**
Press to return the tape to the counter zero point.

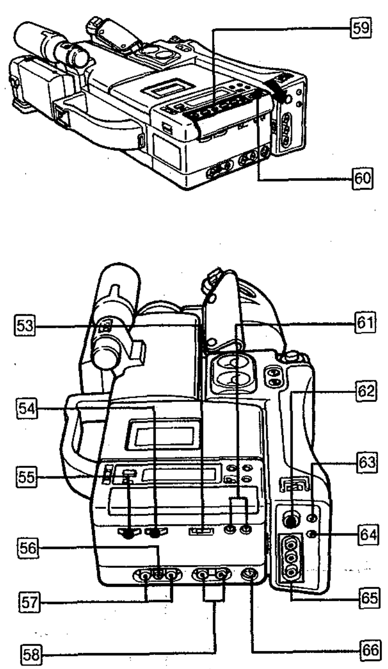
49 **AUDIO DUB (dubbing) switch and lamp**
Slide to dub the audio signals.

50 **INSERT button**
Press to insert a new picture and sound onto a previously recorded tape.

51 **EDIT switch**
Normally keep this switch at the left position. When editing a tape, set to EDIT.

52 **Display window**
- ⓐ Tape counter
- ⓑ MEMORY indicator
- ⓒ INSERT indicator
- ⓓ Tape speed indicator
- ⓔ Lights when the slit in the head is clogged.
- ⓕ Blinks when moisture has condensed inside the unit.
- ⓖ Lights steadily when no cassette is inserted. Blinks when the tape approaches its end.
- ⓗ Blinks when the battery is weak.
- ⓘ Tape operation mode indicators
- ⓙ Blinks when moisture has condensed on the tape, when the tape approaches its end during camera recording or when the tape does not run normally.
  Lights steadily when the cassette is being unloaded.

A-5



A-5

53 **AUDIO MONITOR switch**
Selects the sound to be heard during playback.

54 **FRAME ADJ (adjustment) control**

55 **STILL ADJ (adjustment) control**

56 **RFU DC OUT jack (special mini)**
Connect the RFU-89UCA RFU adaptor, etc.

57 **VIDEO/AUDIO OUT jacks (phono)**

58 **AUDIO OUT jacks (phono)**

59 **Tape transport buttons**
◀◀ (rewind), ▶ (playback), ▶▶ (fast-forward), ■ (stop), ❚❚ (pause), ❚❚▶ FRAME (frame-by-frame playback)

60 **REC (recording) switch**
Slide to the right to start recording.

61 **ACCESSORY IN/OUT jacks** (miniphono)
Connect an optional color corrector, etc.

62 **PHONE LEVEL control**

63 **PHONES jack (stereo mini)**

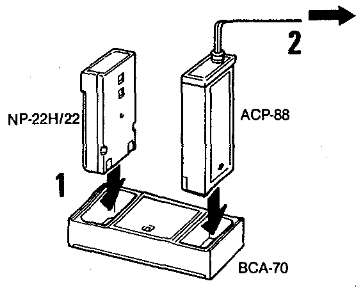
64 **NAR. MIC (narration microphone) jack (mini)**
Connect the microphone cord of the DR-200C (optional) headphone equipped with the microphone.

65 **VIDEO/AUDIO IN jacks (phono)**

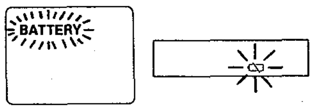
66 **REMOTE connector (5-pin)**
Connect an optional Remote Commander, editing controller, etc.

1-2. POWER SOURCES

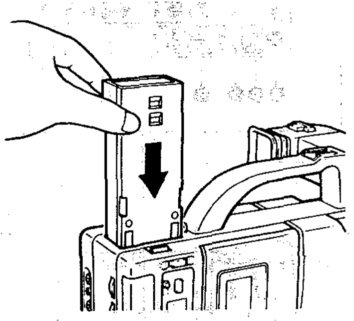
B-1



B-2



B-3



NP-22H/22 Battery Pack

How to charge
Use the ACP-80UC AC pack and the BCA-70 battery charge adaptor.

B-1
The charging time is about 1.5 hours for an NP-22H battery pack, or about 1 hour for an NP-22 battery pack.

1 Insert the battery and the AC pack with the metal contacts facing as illustrated.
2 Connect to a wall outlet.

When the battery is fully charged, the charging will stop automatically and the CHARGE lamp of the battery charge adaptor will go out.

Battery Life
A fully-charged NP-22H battery provides approximately 1 hour of continuous operation and an NP-22 provides approximately 45 minutes of continuous operation.
When the battery becomes weak, the battery indicators appear on the viewfinder screen and in the display window. Replace the battery with the fully charged one. B-2

Notes
- The video camera recorder consumes power even in the recording pause mode. Therefore, for every hour's worth of tape you shoot, plan to use 2 to 3 hours' worth of battery power.
- If the battery pack is not fully charged or if it is used in a cold place, its operating time is also shortened.

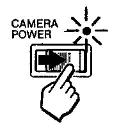
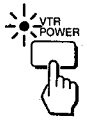
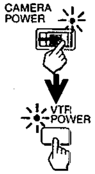
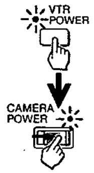
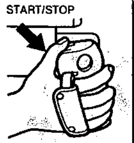
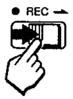
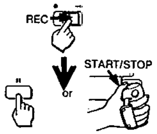
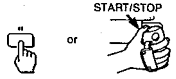
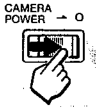
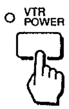
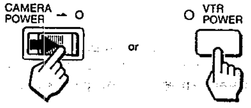
When the video camera recorder is not in use, remove the battery pack.
If the battery is installed, even if the POWER switch is set to OFF, a very small amount of electric current flows.

To insert the battery pack B-3
Insert the battery pack with the metal contacts facing as illustrated.
Make sure that the battery pack is fully inserted to the bottom.

1-3. THREE MODES OF OPERATION

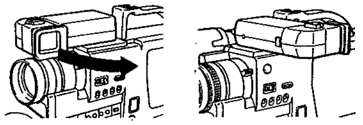
The CCD-V200/V220 video camera recorder is equipped with two power switches, the CAMERA POWER switch and VTR POWER switch. Press either or both of these switches according to the operating modes below.

Modes and their uses

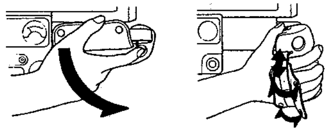
Operating mode	CAMERA mode	VTR mode	VTR-CAMERA mode	
Use	• Camera recording only	• Tape playback • TV programme recording • Tape editing	• Alternating camera recording and tape playback • Insert camera recording	
To turn the power on	**Slide CAMERA POWER to the right.** 	**Press VTR POWER.** 	**Slide CAMERA POWER to the right and then press VTR POWER.** 	**Press VTR POWER and then slide CAMERA POWER to the right.** 
The unit is set to	Recording standby mode	Stop mode	Stop mode	Recording standby mode
To start recording	**Press START/STOP.** 	**Slide REC to the right.** 	**Slide REC to the right and press ▮▮ or START/STOP.** 	**Press ▮▮ or START/STOP.** 
To turn the power off	**Slide CAMERA POWER to the right.** 	**Press VTR POWER.** 	**Press either CAMERA POWER or VTR POWER.** 	

1-4. PREPARATIONS FOR CAMERA RECORDING

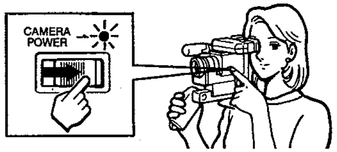
D-1



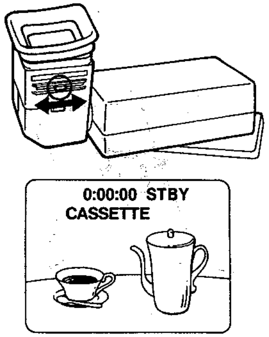
D-2



D-3



D-4



1 **Set the viewfinder.** D-1
Turn the viewfinder until it locks (90 degrees).

2 **Set the grip.** D-2
❶ Pressing the release button, turn the grip until it locks.
❷ Hold the grip so that your thumb and forefinger can minipulate the START/STOP button and the power zoom button respectively.
❸ Adjust the length of the grip strap.

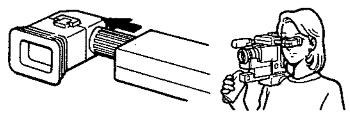
3 **Slide the CAMERA POWER switch to the right.** D-3

4 **Position the video camera recorder.** D-3
Remove the lens cap.
For stable shooting, rest the unit on your shoulder while holding the upper arm firmly against your body.

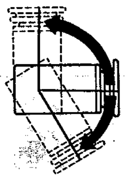
5 **Adjust the position of the viewfinder lens.** D-4
Turn the viewfinder upward and adjust the viewfinder lens adjustment lever so that the indications displayed on the viewfinder screen come into sharp focus.

This adjustment is necessary only when you use the camera for the first time or after another person has used it, because the distance of optimum vision varies from person to person.

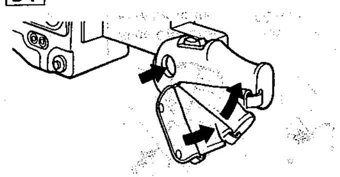
D-5



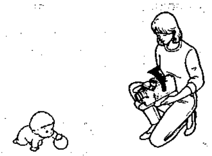
D-6



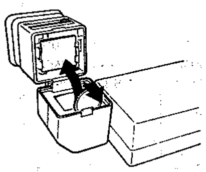
D-7



D-8



D-9



To view with your left eye D-5
Pull out the viewfinder until it locks.

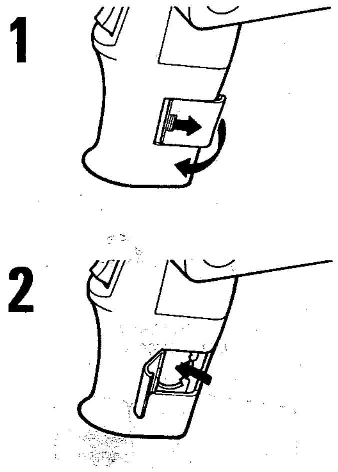
To change the angle of the viewfinder D-6
The viewfinder can be turned 90 degrees up and 60 degrees down to make high-angle or low-angle shooting possible.

To change the angle of the grip D-7
The grip can be set to one of four positions. Pressing the release button, turn the grip until it locks at the desired position.

When shooting from a low angle D-8
Fold the grip in place, turn the viewfinder upward and hold the camera as illustrated.

To remove dust from inside the viewfinder D-9
Open the finder cover with an object like a coin as illustated and remove the dust with a blower.

D-10



Date/Time Setting

To insert the lithium battery D-10
This unit uses a lithium battery to activate the clock and to keep the titles in memory. Before operating the unit for the first time, install the supplied lithium battery.

1 Open the cover of the lithium battery compartment on the grip.
2 Install the supplied CR2025 lithium battery with the ⊕ side facing out.
3 Close the cover.

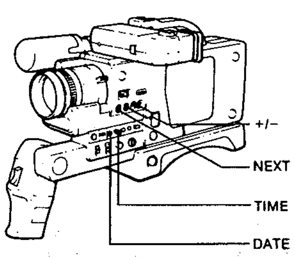
To remove the lithium battery
Press the side of the battery in the direction as indicated for installation.

Lithium battery life
Approximately 2 years in normal operation.
When the lithium battery becomes weak, the time indication will blink on the viewfinder screen for several seconds immediately after the CAMERA POWER switch is turned on.
In this case, replace the battery with a Sony CR2025 or Duracell DL-2025 lithium battery. Use of another battery may present a risk of fire or explosion.

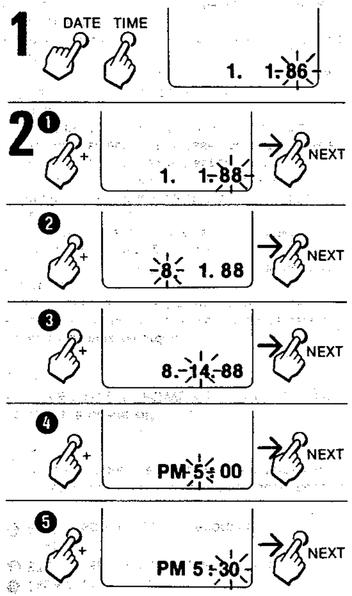
Notes on lithium battery
- Keep the lithium battery out of the reach of children. Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- Be sure to observe the correct polarity when installing the battery.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.
- Do not break up the battery nor throw it into a fire, which might cause it to explode. Carefully dispose of the used batteries.

WARNING
Battery may explode if mistreated.
Do not recharge, disassembly or dispose of in fire.

D-11



D-12



Before setting the date and time

- Make sure that the lithium battery is installed. See page 10.
- Slide the CAMERA POWER switch to the right to set the unit to CAMERA mode.
  (If a cassette is inserted, the power will be turned off automatically in 7 minutes.)

Date/time setting D-11

Once the date and the current time are adjusted, the date or time can be recorded together with the picture.

1 Press the DATE and TIME buttons simultaneously **for more than 3 seconds.**
The date indication will appear on the viewfinder screen (date/time setting mode).

2 Adjust the year, month, day, hour and minute in sequence, following the illustration D-12.
First adjust the blinking digits with the + button, and then press the NEXT button.
❶ Year: 86 = 1986, 00 = 2000
❷ Month
❸ Day
❹ Hour: AM12:00 = midnight, PM12:00 = noon
❺ Minute
After adjusting the minute digits, press the NEXT button at the same time with an announced time signal.

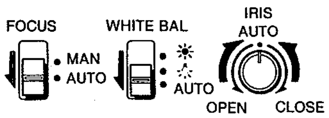
The time indication disappears and the clock starts operating. There is no need to readjust the date and time as long as the lithium battery remains.

The + button can be pressed in two ways:

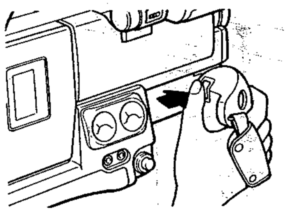
- When you keep the button pressed, the digits will advance continuously.
- When you press and immediately release the button, the digits will advance by one.

1-5. EASY CAMERA RECORDING WITH AUTOMATIC ADJUSTMENT

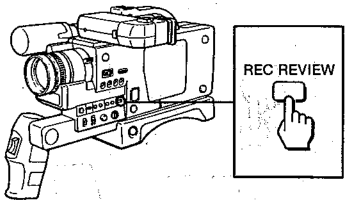
E-1



E-2



E-3



Operation

1 **Slide the CAMERA POWER switch to the right so that the lamp lights up and insert a cassette.**

2 **Set the following selectors to the standard position (green position) for automatic adjustments.** E-1

FOCUS → AUTO (auto focusing)
WHITE BAL → AUTO (linear auto white balance)
IRIS → AUTO (auto iris)

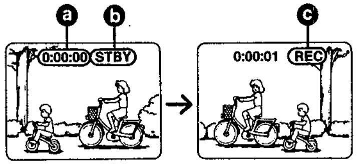
3 **Position the camera and press the START/STOP button.** E-2
The subject seen through the viewfinder and the sound picked up through the microphone can be recorded.

4 **To stop recording, press the START/STOP button.**
The unit will enter recording pause mode.

5 **To check the last scene of the previous recording, press the REC REVIEW button.** E-3
The last few seconds of the recorded scene are played back in reverse, and then played back normally. Then the unit will enter recording pause mode.

To resume recording
Simply press the START/STOP button.

E-4



Check on the viewfinder screen E-4

ⓐ Tape counter

ⓑ STBY: Displayed during recording pause mode.

ⓒ REC: Displayed during recording.

If you leave the unit in the recording pause mode for 7 minutes or more, the power will be automatically turned off.

To turn the power off

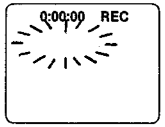
Slide the CAMERA POWER switch to the right again.

Notes on camera recording

- During recording, do not cover the white balance sensor and the infrared beam emitter or the detector.
- During recording with auto focusing, do not turn or stop the focus ring forcibly.
- Keep the lens and the infrared beem detector clean.
- Should you shoot a subject in bright conditions such as sunlight just after shooting in a dark place, the picture may not appear on the viewfinder screen. In this case, move the camera away from the subject to resume the normal condition.
- A vertical band may appear when a subject such as a candle flame or a light is shot against a dark background.
- When removing and attaching the lens hood, hold the focus ring.
- If there is insufficient light, the auto focusing and linear auto white balance do not operate properly. Add an appropriate light.
- The camera recording with automatic adjustment may not produce optimum results under certain conditions or ambient lighting. In this case, manually adjust the focus, white balance and iris. See page 14.

Caution Indicators on the Viewfinder Screen E-5

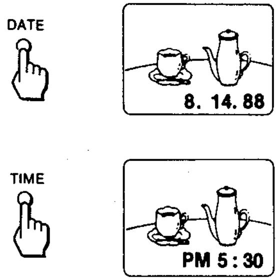
E-5



A caution indicator will be displayed below the tape counter on the viewfinder screen.

BATTERY	Blinks slowly, then rapidly.	The battery is exhausted.
TAPE END	Blinks slowly, then rapidly.	The tape approaches and then reaches its end.
CASSETTE	Blinks.	• No cassette inserted. • The safety tab is out.
DEW	Blinks.	Moisture condensation inside the unit.
CAUTION	Blinks.	• Moisture condensation on the tape surface, etc. • The slit in the head is clogged. → Clean the head using a cleaning cassette.

E-6



To Record the Date or Time E-6

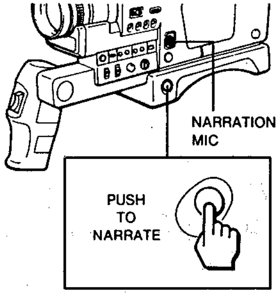
During camera recording or in recording pause mode, press the DATE or TIME button to display the date or time on the viewfinder screen.
If the unit is set to recording mode, the date or time being displayed will be recorded together with the picture.

To stop recording the date or time, press the DATE or TIME button again. The picture recording will continue.

Note

The date or time can be recorded only during a camera recording. To insert the date or time while editing a tape, see "Insert Recording" on page 24.

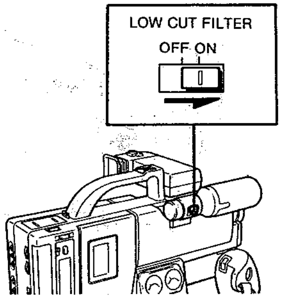
E-7



To Dub the Narration during Recording E-7

Press the PUSH TO NARRATE button. With the PUSH TO NARRATE button kept pressed, the sound from the NARRATION MIC is recorded. (While dubbing the narration, the sound from the external stereo microphone is recorded in the stereo PCM mode.)

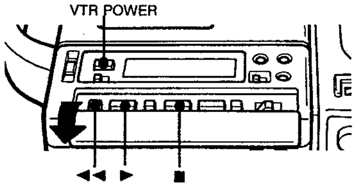
E-8



To Cut Wind Noise, etc. E-8

Set the LOW CUT FILTER switch to ON to cut the low frequency.

E-9



Monitoring the Playback Picture on the Viewfinder Screen E-9

1 Press the VTR POWER switch to set the unit to VTR mode.
2 Press the ◀◀ button to rewind the tape.
3 Press the ■ button to stop the tape.
4 Press the ▶ button to start playback. The playback picture will appear on the viewfinder screen.

To monitor the playback sound, connect the supplied ear receiver to the PHONES jack.

To turn the power off
Press the VTR POWER switch.

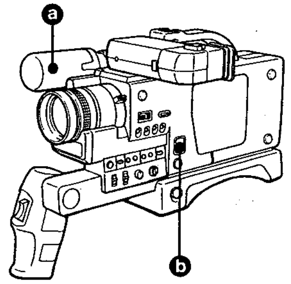
Note
The playback picture and sound may be affected in a moving vehicle.

Smooth Recording

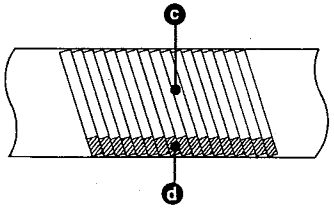
Smooth recording can be made even if the recording is stopped and started again, or even if the power is turned off and on again, provided that the cassette is not removed. But, if the cassette has been removed, proceed as follows.

1 First slide the CAMERA POWER switch to the right and then press the VTR POWER switch. (VTR-CAMERA mode)
2 Press the ▶ button.
3 Locate the point from which the recording is to begin again by monitoring the playback picture on the viewfinder screen, and stop the tape with the ▮▮ button.
4 Slide the ● REC switch in the direction of the arrow to set to recording pause mode.
5 Press the START/STOP button to start recording.

E-11



E-12



Recording will be made as follows

Audio signals are recorded as follows according to the microphone(s) to be used.

E-10
ⓐ : Stereo microphone
ⓑ : Narration microphone

E-11
Enlarged view of the tape
ⓒ : Standard track
ⓓ : PCM track

When the narration microphone is not in use
ⓒ : **Standard track**
Video and audio signals from the stereo microphone are recorded. Recorded sounds are monaural.

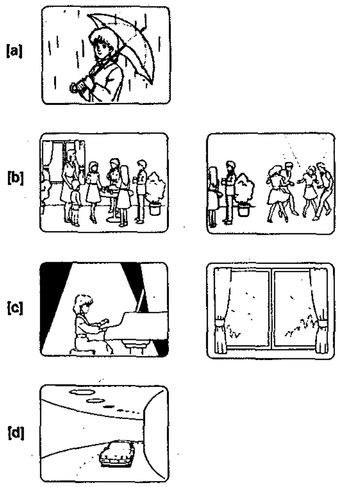
ⓓ : **PCM track**
Audio signals from the stereo microphone are recorded in stereo PCM sound.

When the narration microphone is in use
ⓒ : **Standard track**
Video and audio signals from the narration microphone are recorded. Recorded sounds are monaural.

ⓓ : **PCM track**
Audio signals from the stereo microphone are recorded in stereo PCM sound.

1-6. WHITE BALANCE

G-1

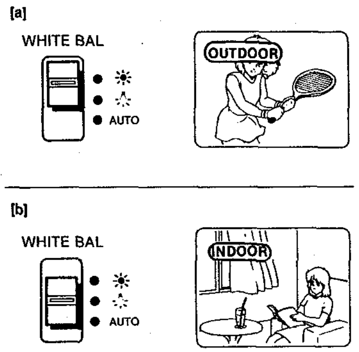


In most cases, the linear auto white balance function of this unit adjusts the white balance automatically. However, if it does not work correctly in the conditions listed below, set the WHITE BAL selector to ☀ or ∴ according to the lighting condition.

Difficult Conditions for Linear Auto White Balance G-1

- [a] Insufficient light
- [b] When lighting conditions change quickly
- [c] When the light source for the subject is different from that illuminating this unit ex. when the subject is in a spotlight, or when the subject is outdoors but the camera is indoors, etc.
- [d] Special light sources such as natrium lamps, etc.

G-2



How to Set the WHITE BAL Selector G-2

- [a] **Recording outdoors**—Set to ☀. (5,800 K)
- [b] **Recording indoors**—Set to ∴. (3,200 K)

Recommended setting for various subjects

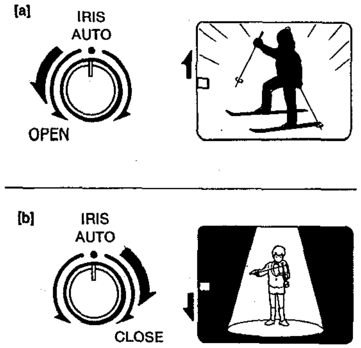
☀: sunset, fireworks, subjects in a sunny window, etc.
∴: candle flames in darkness, subjects in the spotlight, scenes before sunrise, subjects in a tunnel (illuminated by natrium lamps), etc.

What is the white balance?
The color of the subject being recorded can be affected by the ambient light. White balance adjustment is necessary for compensating for this color variation, so that a white subject, for example, can be recorded white without reference to the light source.

Linear auto white balance system
The auto white balance system of this unit utilizes the white balance sensor located below the built-in microphone to determine the color temperature of the ambient light and adjust the white balance accordingly. As the ambient lighting condition changes gradually, such as in twilight, the white balance will be readjusted automatically. As the sensor is built in the unit, however, optimum white balance adjustment cannot be obtained if the subject and this unit are under different lighting conditions.

1-7. IRIS ADJUSTMENT

H



Iris Adjustment H

The iris is adjusted automatically with the IRIS control set to AUTO. When shooting a scene with strong contrast, adjust the IRIS control.

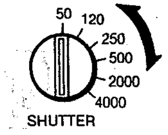
- [a] When backlit shot results in the subject being too dark → Turn IRIS toward OPEN.
- [b] When a subject is too bright against a dark background → Turn IRIS toward CLOSE.

When the IRIS control is turned, the white mark moves at the left side of the viewfinder screen.

After shooting that particular scene, reset the IRIS control to AUTO.

1-8. SHUTTER SPEED ADJUSTMENT

I-1

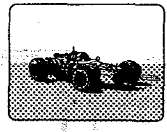


When the shutter speed is fast, subjects moving at high speed, such as a moving golf ball or tennis ball, can be recorded clearly.
Six shutter speeds can be selected on this unit: 1/60 (normal speed), 1/100, 1/250, 1/500, 1/2000, 1/4000. I-1

Recommended shutter speed settings
The faster the shutter speed is, the better faster movements of the subjects can be followed but the recorded picture becomes darker. Select the appropriate shutter speed while observing the brightness of the picture on the viewfinder screen.

Example use	Recommended shutter speed
• On clear days, recording golf or tennis scenes (To view the hit ball clearly in the pause mode, set to 1/4000) • Recording the skiers	1/4000 or 1/2000
• On overcast days, recording a moving merry-go-round or jet-coaster • Recording outdoors from inside a vehicle (for stable shooting)	1/500 or 1/250
• Instead of the ND2 filter (To reduce the exposure level to approx. 1/2) • Recording indoors (for stable shooting)	1/100

I-2

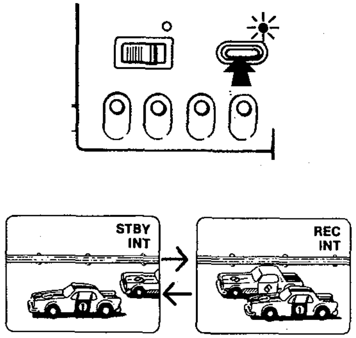


A noiseless still, frame-by-frame and slow pictures are obtained when the picture recorded with the faster shutter speed is played back.

Notes
- When the shutter speed is changed during a camera recording of a TV screen, the brightness of the recorded picture may vary. I-2
- When a very bright object is shot at a faster shutter speed, a light, vertical, belt-like line ("smear") may appear on the screen. This is not a failure of the unit.
- When shutter speed 1/250 or more is selected, recording must be done under sunlight or video light.
- When the recording is done under a light discharged tube, such as a fluorescent lamp, sodium lamp, or mercury lamp, the brightness of the recorded picture may vary ("flicker").
- If flickers of fluorescent lamps affect the recording in 50 Hz areas, set the shutter speed to 1/100.

1-9. AUTOMATIC INTERVAL RECORDING

L



A very short recording of 8 frames will be activated repeatedly at 15-second intervals, simply by pressing the INTERVAL REC button. L

1 Slide the CAMERA POWER switch to the right to set the unit to the recording pause mode.
2 Press the INTERVAL REC button.
The INTERVAL lamp will light and the unit will enter the interval recording mode.

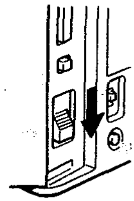
> A very short recording of 8 frames will be made at 15-second intervals and the recording pause mode will resume. This procedure is repeated for approximately 30 minutes and then the unit will remain in the recording pause mode.

The pause mode will be released automatically after about 7 minutes and the unit will be turned off.

To stop the interval recording
Press the INTERVAL REC button to turn the INTERVAL REC lamp off.

1-10. FRAME RECORDING

M



A very short recording of 8 frames can be activated manually for creating an animated programme of your own. M

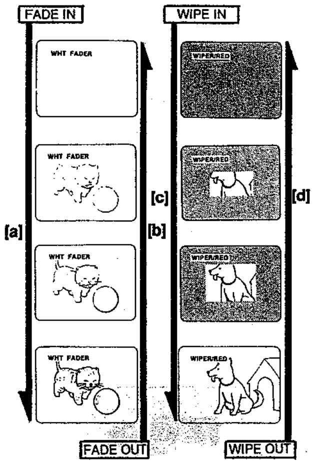
1 Press the VTR POWER switch and then slide the CAMERA POWER switch. The unit is set to recording pause mode.
2 Slide the ● REC switch in the direction of the arrow.
A recording of 8 frames will be made and the recording pause mode will resume.
3 Move the object a little and repeat step 2 as many times as you like.

When the recording pause mode lasts for more than approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

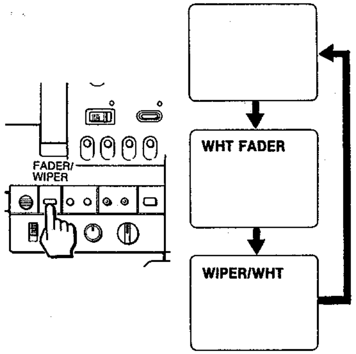
To record from a VCR
Make the necessary connections as described in editing from another VCR on page 116 and press the VTR POWER switch. Set the video camera recorder to recording pause mode and proceed to steps 2 and 3 above.

1-11. FADER AND WIPER

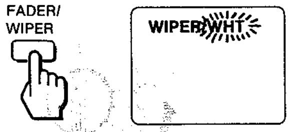
N-1



N-2



N-3



With the fader and wiper functions, you can add dramatic effects at the beginning, at the end, or in other portions of the video program you are recording. N-1

[a] **Fade in**—the picture and sound will come gradually from a white, silent scene.
[b] **Fade out**—the picture and sound will go out gradually until a white, silent scene is reached.
[c] **Wipe in**—the picture will become visible gradually from the center of the screen and the sound volume will increase.
[d] **Wipe out**—the picture will go out of sight gradually toward the center of the screen and the sound volume will decrease.

The color of the fader is white only, while the color of the wiper can be selected among 7 colors.

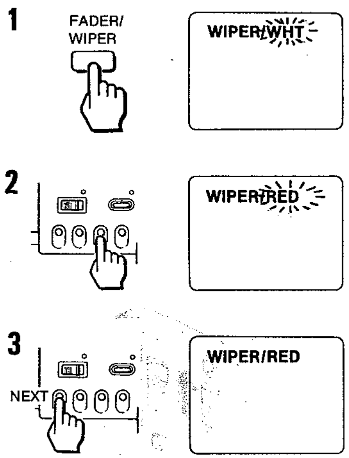
How to press the FADER/WIPER button

- Each time the FADER/WIPER button is pressed momentarily, the unit will be set to the following three modes consecutively. N-2

Normal mode → FADER mode → WIPER mode

- When the FADER/WIPER button is kept pressed for more than 3 seconds in any mode, the unit will enter the wiper color setting mode. The color indicator blinks on the viewfinder screen. N-3

N-4



Fader Operation

To fade in

1 Slide the CAMERA POWER switch to the right to set the unit to the recording pause mode.
2 Press the FADER/WIPER button **once** to set the unit to FADER mode.
3 Press the START/STOP button to start camera recording.

To fade out

1 During camera recording, press the FADER/WIPER button **once** to set the unit to FADER mode.
2 Press the START/STOP button to stop recording.

Wiper Operation

To set the color of the wiper N-4

1 Press the FADER/WIPER button **for more than 3 seconds** to set the unit to wiper color setting mode.
2 Press the + or − button repeatedly until the desired color indicator appears.

WHT (white), BLUE, GRN (green), CYAN, RED, VIO (violet), YEL (yellow)

3 Press the NEXT button to memorize the setting.
The color indicator lights steadily.

To wipe in

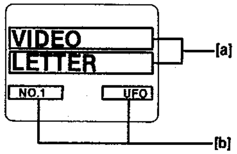
1 Slide the CAMERA POWER switch to the right to set the unit to the recording pause mode.
2 Press the FADER/WIPER button **twice** to set the unit to WIPER mode.
3 Press the START/STOP button to start camera recording.

To wipe out

1 During camera recording, press the FADER/WIPER button **twice** to set the unit to WIPER mode.
2 Press the START/STOP button to stop recording.

1-12. RECORDING A TITLE

O-1


VIDEO
LETTER
NO.1
UFO
[a]
[b]

A main title and a sub title can be created and recorded together with the picture.

O-1

[a] **Main title:** 10 characters × 2 lines, displayed in large characters

[b] **Sub title:** 6 + 8 characters, displayed in small characters

- Selectable colors:

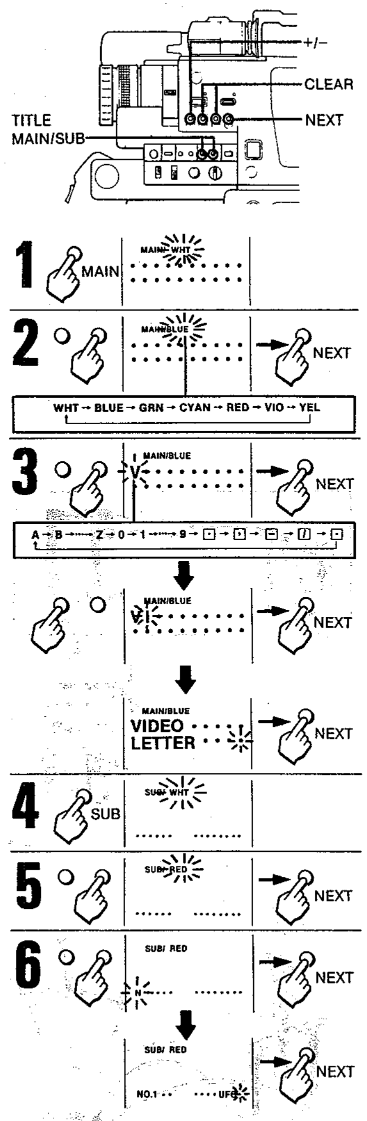
WHT (white), BLUE, GRN (green), CYAN, RED, VIO (violet), YEL (yellow)

- Selectable characters:

alphabet, numerals, 4 symbols (period, apostrophe, hyphen and slash), space

Before setting the titles
- Make sure that the lithium battery is installed. See page 10.
- Slide the CAMERA POWER switch to the right to set the unit to CAMERA mode.
  (If a cassette is inserted, the power will be turned off automatically in 7 minutes.)
- Lift up the viewfinder lens for easier viewing.

O-2


+/-
CLEAR
NEXT
TITLE
MAIN/SUB
1
MAIN
MAIN WHT
2
MAIN/BLUE
NEXT
WHT → BLUE → GRN → CYAN → RED → VIO → YEL
3
MAIN/BLUE
V
NEXT
A → B →···→ Z → 0 → 1 →···→ 9 → . → ' → - → / → ·
MAIN/BLUE
NEXT
MAIN/BLUE
VIDEO
LETTER
NEXT
4
SUB
SUB WHT
5
SUB RED
NEXT
6
SUB/ RED
N
NEXT
SUB/ RED
NO.1
UFO
NEXT

Title setting O-2

1. Press the MAIN button **for more than 3 seconds.**
   The MAIN title will appear on the viewfinder screen and the color indicator will blink (main title setting mode).
2. Set the color with the +/– buttons, and then press the NEXT button.
3. Set the characters one by one, with the +/– buttons and the NEXT button.*

When the last character is set, press the NEXT button until the setting screen disappears. The main title will be memorized.

4. Press the SUB button **for more than 3 seconds.**
   The SUB title will appear and the color indicator will blink (sub title setting mode).
5. Set the color with the +/– buttons, and then press the NEXT button.
6. Set the characters one by one, with the +/– buttons and the NEXT button.*

When the last character is set, press the NEXT button until the setting screen disappears. The sub title will be memorized.

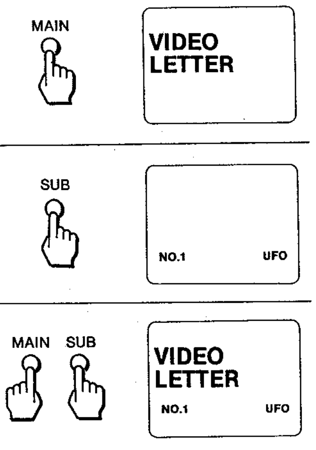
* To set a space, press the NEXT button without pressing the +/– buttons. The dot remains displayed during setting.

To check the title
To check the main title, press the MAIN button.
To check the sub title, press the SUB button.
To turn off the title, press the same button again.

To clear the title
Set the unit to the main or sub title setting mode and press the CLEAR button.

To change a part of the title
Set the unit to the main or sub title setting mode and press the NEXT button repeatedly until the desired character blinks. Change it with the +/– buttons and press the NEXT button until the title disappears.

O-3



To Record the Title O-3

During camera recording or in recording pause mode, press the MAIN button and/or SUB button to display the main title and/or sub title.
If the unit is set to recording mode, the title(s) will be recorded together with the picture.

To stop recording the title(s), press the MAIN button and/or SUB button. The picture recording will continue.

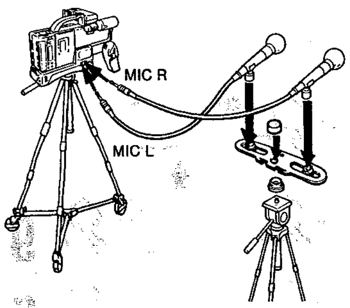
Note
The title can be recorded only during a camera recording. To insert a title while editing a tape, see "Insert Recording" on page 24.

When recording the title in fader or wiper mode
In fader mode, the title will appear and disappear with the picture fade-in and fade-out. In wiper mode, the title remains displayed while the picture is wiped in and wiped out.

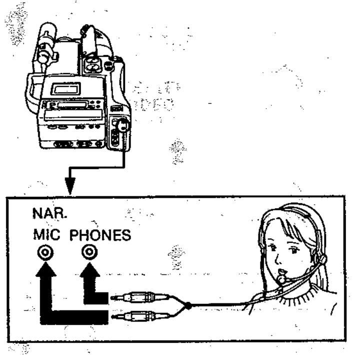
- The color of the title characters may be blurred or shifted when the tape is played back.
- Check the combination of the colors of the title and the wiper on the monitor screen.

1-13. USE OF AN OPTIONAL MICROPHONE

R-1



R-2



The built-in microphone is a stereo uni-directional type. The sharp directivity of this microphone allows recording of the sound from the subject itself and its surroundings with natural sound quality.
By using an optional microphone, audio recording efficiency and enjoyment can be further increased.

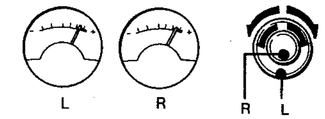
A variety of optional microphones
- Omni-directional microphone: To pick up sounds equally from all directions
- Uni-directional microphone: To pick up specific sounds
- Supercardioid microphone: To isolate a sound
- Zoom microphone: To allow the field of recording to be changed

To attach the optional microphones R-1
1 Attach the microphones to the microphone arm attached to the tripod with the microphone stand adaptor.
2 Connect the microphones to the MIC L/R jacks.
3 Turn on the CAMERA POWER switch (CAMERA mode) or the CAMERA POWER and VTR POWER switches (CAMERA-VTR mode).

To dub the narration with the external narration microphone, while monitoring the sounds to be recorded R-2
Use an optional stereo headphone equipped with the microphone, such as the Sony DR-200C.

Notes
- When the external narration microphone is connected to the NAR. MIC jack, the built-in NARRATION MIC does not function.
- Keep the external microphone far away from the TV so that the hum noise does not occur.
- When the external narration microphone is connected to the NAR. MIC jack, the sound from the connected microphone is recorded even if the PUSH TO NARRATE button is not pressed.

R-3



The sound to be recorded when the external microphone is connected

Track / Connection	PCM track L (left) channel	PCM track R (right) channel	standard track
L and R	external L microphone	external R microphone	external L/R microphones
L	external L microphone	external L microphone	external L microphone
R	built-in L microphone	external R microphone	built-in L and external R microphones

(in CAMERA mode or VTR-CAMERA mode)

To adjust the volume of the external microphone R-3

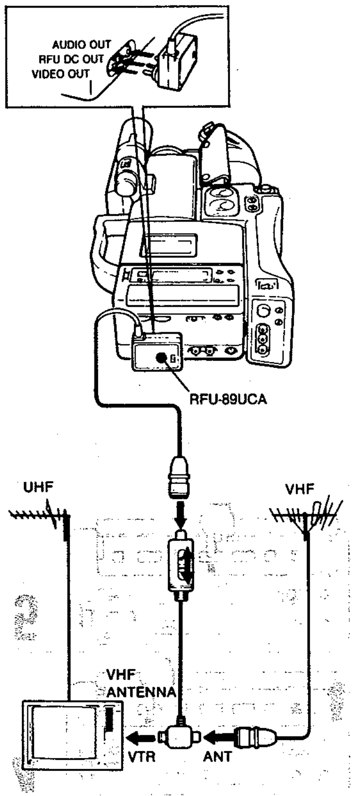
Normally set the green marks.
To adjust the volume, turn the REC LEVEL controls so that the meter does not enter into the red mark.

Notes

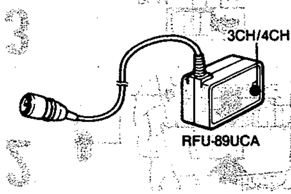
- If the meter swings into the red mark, the recorded sound is distorted.
- If the meter hardly swings at the left position, noisy sound is recorded.

1-14. PLAYBACK OF THE RECORDING TAPE

S-1



S-2



Connecting a TV

Connecting a TV without audio/video input connectors S-1

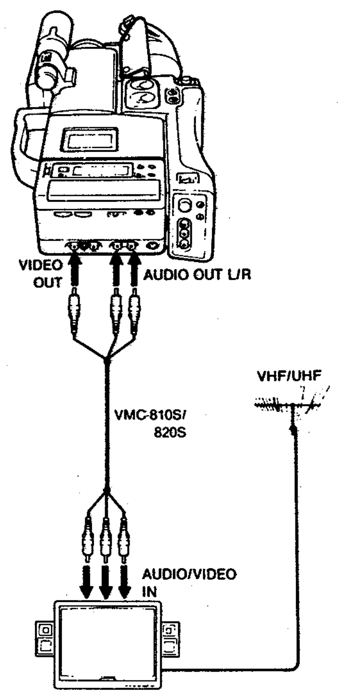
1 Connect the RFU-89UCA RFU adaptor to the CCD-V200/V220.
2 Connect the VHF antenna, CCD-V200/V220 and TV to the antenna selector (supplied with the RFU-89UCKA).
Use a 75-ohm coaxial cable for antenna connection.
3 Set the selector switch on the antenna selector as follows:

For viewing a playback picture → VTR
For viewing TV programs → ANT

On the TV channel for the video camera recorder S-2

Whenever you view the playback picture, set the channel selector of the RFU-89UCA to either VHF channel 3 CH or 4 CH and select the same channel on the TV.

S-3


VIDEO OUT
AUDIO OUT L/R
VMC-810S/ 820S
VHF/UHF
AUDIO/VIDEO IN

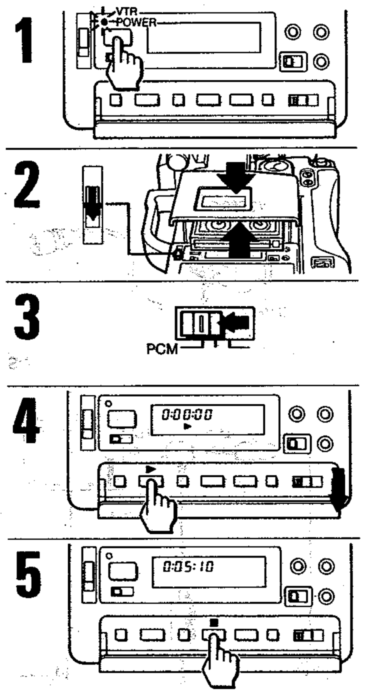
Connecting a TV (or color monitor) equipped with audio/video input connectors S-3

Leave the TV antenna cable connected to the TV.

1 Connect the CCD-V200/V220 to the TV using the optional VMC-810S/820S video/audio cable.
2 Set the TV/VIDEO selector button on the TV as follows:

For viewing a playback picture → VIDEO
For viewing TV programs → TV

S-4


1
VTR POWER
0:00:00
2
3
PCM
4
0:00:00
5
0:05:10

To Play Back S-4

Turn on the TV or color monitor and select the program position for the video camera recorder or set the TV/VIDEO select button to VIDEO.

1 Press the VTR POWER switch.
2 Insert a cassette.
3 Set the AUDIO MONITOR switch to PCM.
4 Press the ▶ button. Playback begins.
5 To stop playback, press the ■ button.

When the tape comes to its end, the unit is automatically set to stop mode.

Setting the AUDIO MONITOR Switch

Normally set to PCM.
When no sound is recorded on the PCM track, the sound on the standard track is played back automatically.

For monitoring the audio dubbed tape

To hear the audio dubbed sounds	Set to PCM.
To hear the audio dubbed sounds and prerecorded sounds	Set to MIX.
To hear the prerecorded sounds	Set to STD.

For monitoring the narration dubbed tape

To hear the sound of the original only	Set to PCM.
To hear the sound of the original and narration	Set to MIX.
To hear the narration only	Set to STD.

Notes

- If the PCM lamp does not light and/or the sound is not heard or heard only intermittently when a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played back on this unit, set the AUDIO MONITOR switch on this unit to STD.
- When the stereo TV is connected only by the aerial cable, the stereo sounds cannot be heard.
- When the TV and this unit are connected with the RFU-89UCA adaptor, sounds are heard as follows according to the position of the AUDIO MONITOR switch.

Position of the switch	Sounds heard
PCM	Mixed sounds recorded on the left and right channels of the PCM track
MIX	Mixed sounds recorded on the PCM track and the standard track
STD	Sounds recorded on the standard track

- To play back a tape recorded in the bilingual mode on this unit, decrease the sounds which you do not wish to monitor on the TV.

Various Playback Modes

To obtain a still picture
Press the ▮▮ button during playback. To resume normal playback, press the ▶ button.

When the pause mode lasts for more than approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

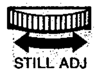
Frame-by-frame playback
Press the ▮▮▶ button in still picture mode.
To resume normal playback, press the ▶ button.
If the ▮▮▶ button is kept depressed, a slow motion picture at 1/30 normal speed is obtained.

To view the picture at high speed
Keep pressing the ▶▶ (fast-forward) or ◀◀ (rewind) button during playback. Release the button for normal playback.

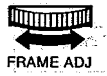
Note
Streaks will appear and the sound will be muted in the high-speed playback mode.

Picture adjustment
S-5 When a double image picture appears in still mode, adjust the STILL ADJ control so that the center of the picture does not double.
S-6 When streaks appear in slow mode, adjust the FRAME ADJ control.

S-5

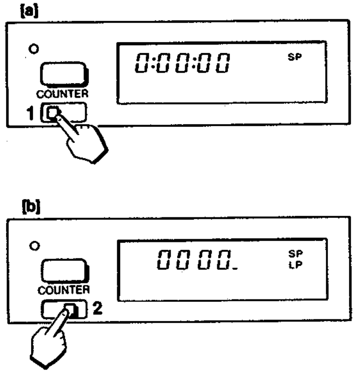


S-6



1-15. USE OF THE TAPE COUNTER

T-1



To Select the Counter Mode T-1

Select one of the two counter modes with the COUNTER selector.

Counter 1 (0:00:00 mode) **[a]**
When playing back a tape recorded in SP mode.

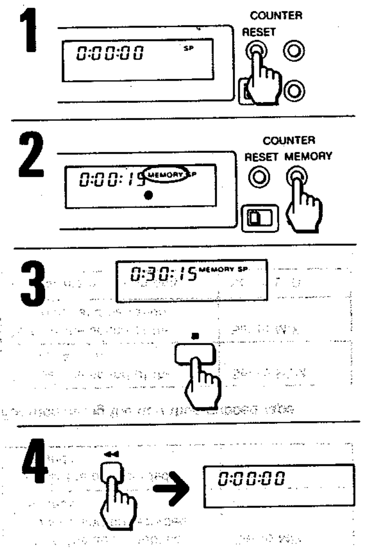
Counter 2 (0000 mode) **[b]**
When playing back a tape recorded in LP mode or a tape recorded in LP and SP modes mixed with another recorder

When recording, select either counter 1 or 2.

To Index the Whole Tape

Press the RESET button at the beginning of the tape so that the counter shows "0:00:00" or "0000". By noting the counter reading at a particular point, you can easily find that point later by referring to the tape counter.

T-2



To Return to a Pre-registered Point T-2

1 During recording or playback, press the RESET button at the point you later want to locate.
2 Press the MEMORY button and the "MEMORY" indicator will appear in the display window.
3 Press the ■ button, when the recording or playback has finished.
4 Press the ◀◀ or ▶▶ button.
The tape will be rewound or sent forward and stop automatically when the counter reaches zero.

Notes
- While the "MEMORY" indicator is displayed, the counter cannot be reset to zero, therefore, press the MEMORY button to cancel the function.
- The counter reading and the point of the tape may not correspond exactly (5 digits max. for counter 1.)
- Counter 1 serves as a rough time counter. 1 digit represents approximately 1 second.
- Counter 1 will not advance during any blank portion of a tape.
- If the COUNTER selector is set to 1 and an LP-recorded tape is played back, the tape counter will not advance.

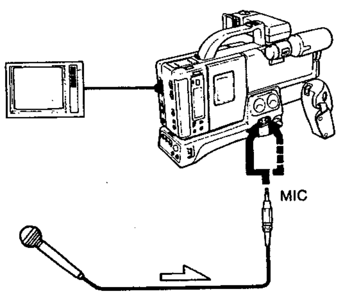
1-16. TROUBLE INDICATORS

░ lighting ▒ blinking slow ▓ blinking fast

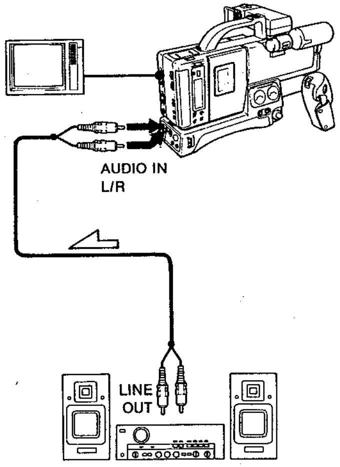
Operating mode	CAMERA mode		VTR mode		VTR-CAMERA mode	
Cause	Viewfinder	Display window	Viewfinder	Display window	Viewfinder	Display window
The battery is weak.	BATTERY	🔋		🔋	BATTERY	🔋
The tape is near its end.	TAPE END	📼		📼	TAPE END	📼
The tape is at its end.	TAPE END	📼⏏				
Moisture has condensed on the tape, etc.	CAUTION	⏏		⏏	CAUTION	⏏
No cassette is inserted.	CASSETTE	📼		📼	CASSETTE	📼
The tab on the cassette is out.	CASSETTE	📼⏏				
Moisture has condensed inside the unit.	DEW	💧		💧	DEW	💧
The slit in the head is clogged.	CAUTION	⊗		⊗	CAUTION	⊗

1-17. TO DUB THE AUDIO SIGNALS

W-1



W-2



Any desired music or narration can additionally be recorded on the PCM track of a tape, while the picture and sound pre-recorded on the standard track are unchanged.

W-1 To dub the signals from the microphone(s)
W-2 To dub the signals from the audio system
W-3 To dub the signals from the microphone and the audio system

The sound to be recorded

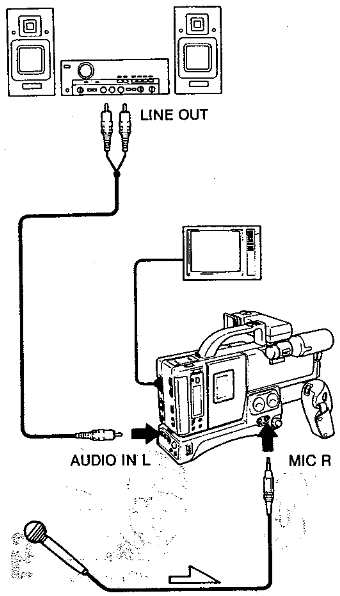
Track / Connection		PCM track L (left) channel	PCM track R (right) channel
W-1	L and R	external L microphone	external R microphone
	L	external L microphone	external L microphone
	R	no recorded	external R microphone
W-2		stereo system L	stereo system R
W-3		stereo system	external microphone

(in VTR mode)

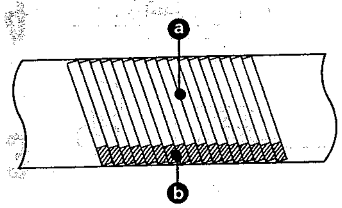
To dub the audio signals with the built-in stereo microphone
Disconnect the external microphone and set this unit in VTR-CAMERA mode. The sound from the built-in microphone is recorded on the left/right channels of the PCM track. (For details of the operation, see the next page.)

Note on the connection W-1
When the microphone is connected only to the MIC R jack, in VTR mode, noises are recorded and in VTR-CAMERA mode, the sound from the built-in left microphone is recorded on the left channel of the PCM track.

W-3



W-4



Operations

1 Turn on the TV and select the channel for the video camera recorder or select video input mode.
2 Turn on the VTR POWER on this unit.
To dub the sound with the build-in microphone, turn on the CAMERA POWER and then VTR POWER.
3 Press the ▶ button.
4 Decide where the audio dubbing is to start, and press the ❚❚ button.
5 Slide the AUDIO DUB. button.
6 Adjust the recording level with the REC LEVEL controls. (page 19.)
When the sound is dubbed with the built-in microphone, the recording level cannot be adjusted.
7 Press the ❚❚ button to release pause mode and at the same time start the audio source.

To stop dubbing for a moment, press the ❚❚ button.
To stop dubbing, press the ■ button.

To play back the audio dubbed tape, see pages 19 to 21.

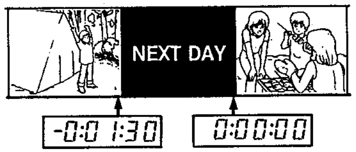
Notes
- At the starting of the dubbing, upper of the picture may be distorted.
  The recorded picture will not be affected.
- During dubbing, a black band will appear in the screen. The recorded picture will not be affected.
- During dubbing, if the AUDIO MONITOR switch is set to STD, the sounds will not be monitored.
- The prerecorded sounds on the PCM track will be erased by dubbing.
- In case of connection W-2, if the microphones are connected to the MIC jacks, the signals from the audio system will not be dubbed.
- The dubbed sounds cannot be played back by the VTR without the PCM recording or playback functions.
- During dubbing, the INSERT mark will be displayed in the display window.
- When the tape which is recorded in the different recording speed is used for dubbing, the sound will not be heard from the point where the recording speed is changed.

Recording will be made as follows W-4

ⓐ **Standard track:** Sounds on this track remain.
ⓑ **PCM track:** The dubbed sounds are recorded on this track.

1-18. INSERT RECORDING

X-1



You can insert (record) video and audio simultaneously from the camera, a TV or a VCR onto any recorded tape. X-1

Preparation

Connect the necessary equipment and prepare a program source to be inserted. For details, refer to the corresponding page.

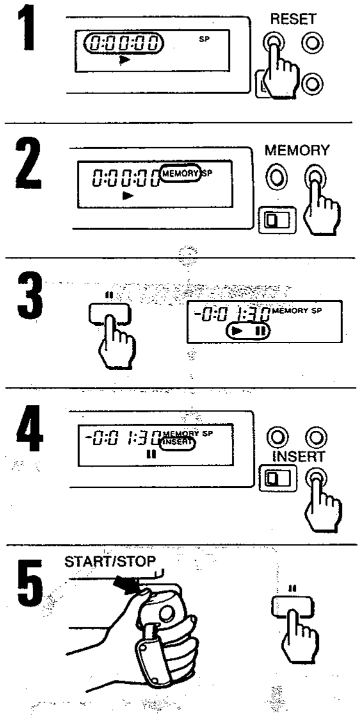
To insert camera recording
Slide the CAMERA POWER switch to the right and then press the VTR POWER switch (VTR-CAMERA mode).

To insert a TV program
Press the VTR POWER switch.

To insert a recording from a VCR
Press the VTR POWER switch.

Select the same recording mode in which the original tape was recorded.

X-2



Operation X-2

Monitor the playback picture of the recorded tape on the viewfinder screen.

1. Find the position for the end of the insert and press the RESET button. The counter returns to "0:00:00".
2. Press the MEMORY button to register the counter "0:00:00" point. The "MEMORY" indicator appears in the display window.
3. Find the point where the insert should begin by pressing the ◀◀ button during playback and press the ❚❚ button.
4. Press the INSERT button. The unit is set to the insert pause mode.
   The INSERT indicator will appear.
5. Start insert recording:
   For camera recording, press the START/STOP button.
   For other recording, press the ❚❚ button.

The insert recording will stop at the counter reading "0:00:00".

When the pause mode lasts for approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

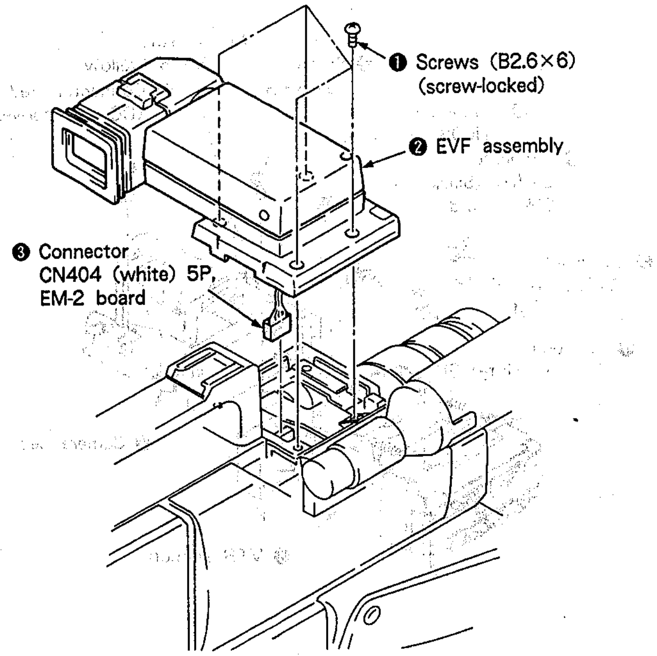
Note
When the inserted tape is played back, the picture may be distorted at the end of the inserted part.

You can start an insert recording without registering the end point.
In this case, start operating from step 3. Proceed with the remaining steps and stop the insertion by pressing the ■ button.

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF EVF (ELECTRONIC VIEW FINDER) ASSEMBLY

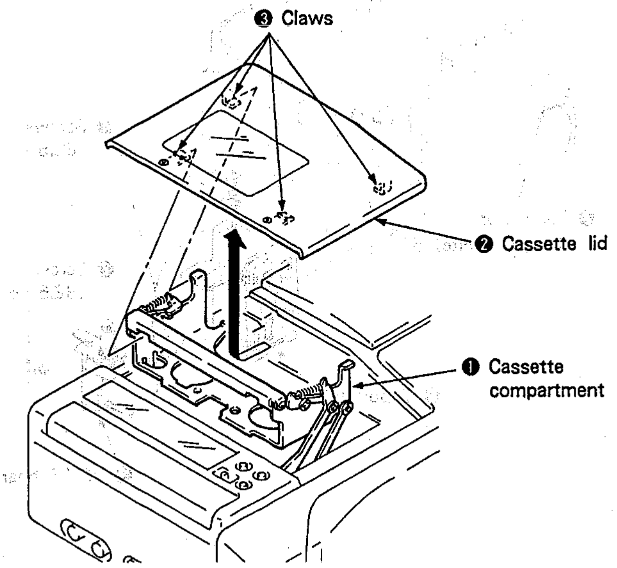
1) Remove the four screws ❶ and remove the EVF assembly ❷.
2) Disconnect the connector CN404 ❸.


❶ Screws (B2.6×6)
(screw-locked)
❷ EVF assembly
❸ Connector
CN404 (white) 5P,
EM-2 board

2-2. REMOVAL OF CASSETTE LID

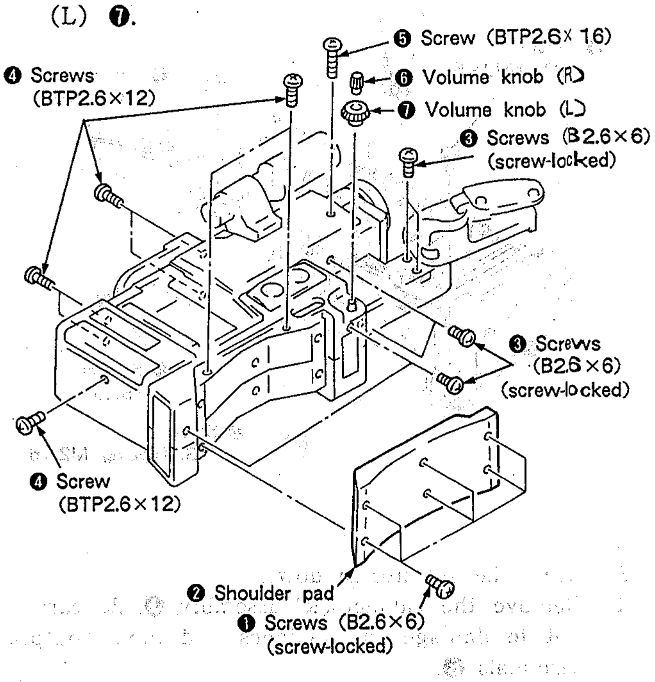
1) Turn ON the power, and open the cassette compartment ❶ by operating the eject switch.
2) Remove the cassette lid ❷ by sliding it in the direction of the arrow.

Note : When attaching the cassette lid ❷, make sure to mount the four claws ❸ onto the specified positions.

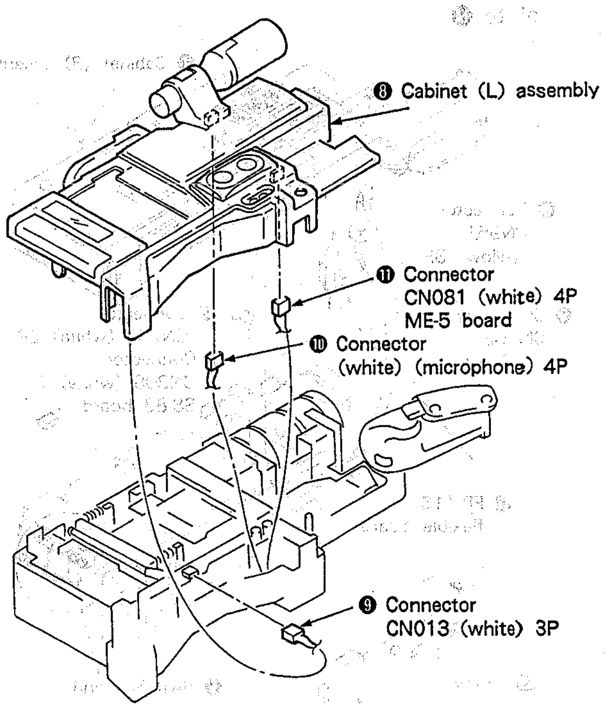

❸ Claws
❷ Cassette lid
❶ Cassette
compartment

2-3. REMOVAL OF CABINET (L) ASSEMBLY

1) Remove the six screws ❶, and remove the shoulder pad ❷.
2) Remove the six screws ❸, seven screws ❹, and screw ❺.
3) Remove volume knob (R) ❻ and volume knob (L) ❼.

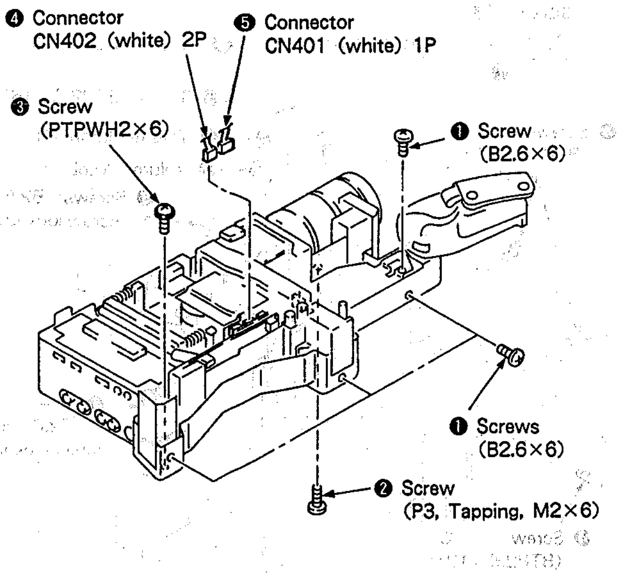

❺ Screw (BTP2.6×16)
❻ Volume knob (R)
❼ Volume knob (L)
❹ Screws
(BTP2.6×12)
❸ Screws (B2.6×6)
(screw-locked)
❸ Screws
(B2.6×6)
(screw-locked)
❹ Screw
(BTP2.6×12)
❷ Shoulder pad
❶ Screws (B2.6×6)
(screw-locked)

4) Remove the cabinet (L) assembly ❽.
5) Disconnect the connector CN013 ❾, connector (microphone) ❿, and connector CN081 ⓫.

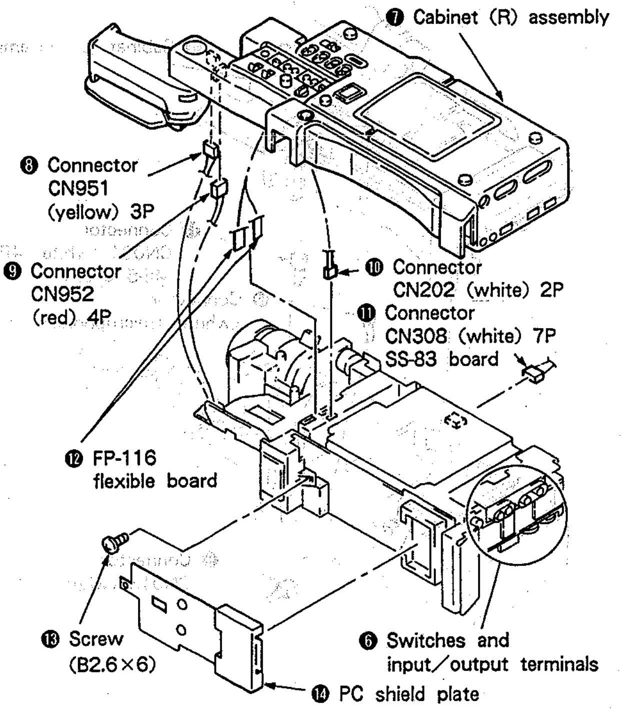

❽ Cabinet (L) assembly
⓫ Connector
CN081 (white) 4P
ME-5 board
❿ Connector
(white) (microphone) 4P
❾ Connector
CN013 (white) 3P

2-4. REMOVAL OF CABINET (R) ASSEMBLY

1) Remove the four screws ❶, screw ❷, and screw ❸.
2) Disconnect connector CN402 ❹ and connector CN401 ❺.

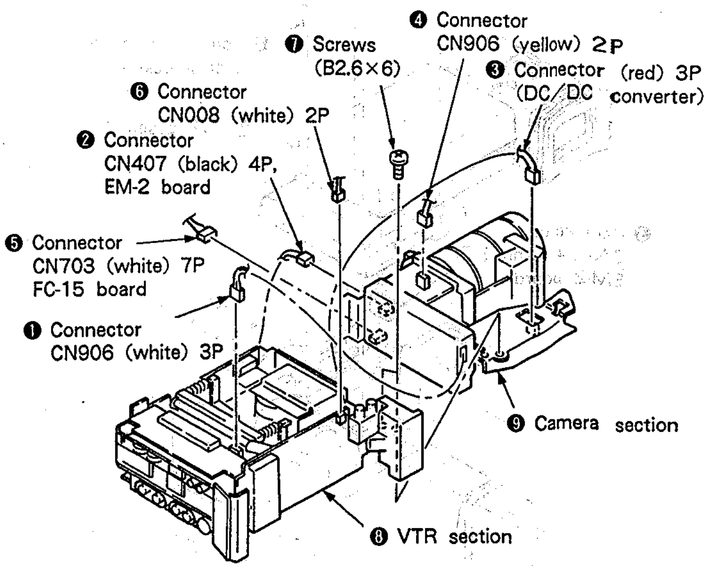

❹ Connector
CN402 (white) 2P
❺ Connector
CN401 (white) 1P
❸ Screw
(PTPWH2×6)
❶ Screw
(B2.6×6)
❶ Screws
(B2.6×6)
❷ Screw
(P3, Tapping, M2×6)

3) Turn the set upside down.
4) Remove the cabinet (R) assembly ❼. Be careful not to damage the switches and input/output terminals ❻.
5) Disconnect connectors CN951 ❽, CN952 ❾, CN202 ❿ and CN308 ⓫.
6) Remove the FP-116 flexible board ⓬.
7) Remove the screw ⓭, and remove the PC shield plate ⓮.


❼ Cabinet (R) assembly
❽ Connector
CN951
(yellow) 3P
❾ Connector
CN952
(red) 4P
❿ Connector
CN202 (white) 2P
⓫ Connector
CN308 (white) 7P
SS-83 board
⓬ FP-116
flexible board
⓭ Screw
(B2.6×6)
❻ Switches and
input/output terminals
⓮ PC shield plate

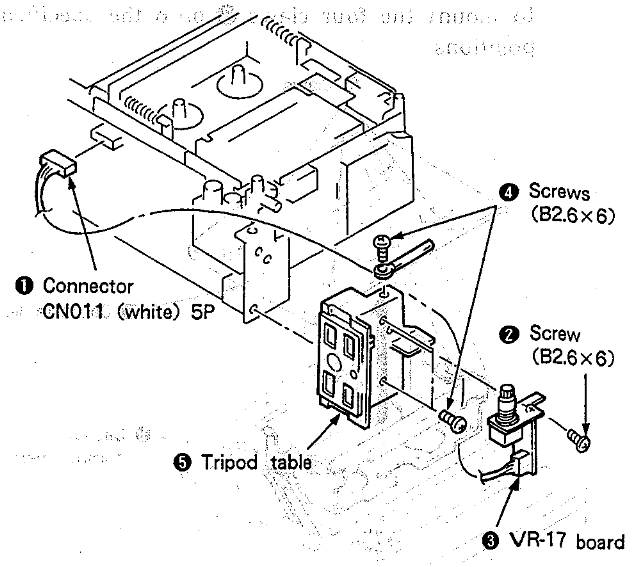
2-5. SEPARATION OF VTR SECTION AND CAMERA SECTION

1) Disconnect the connectors CN906 ❶, CN407 ❷, (DC-DC converter) ❸, CN906 ❹, CN703 ❺ and CN008 ❻.
2) Remove the two screws ❼, and separate the VTR section ❽ and the camera section ❾.


❹ Connector
CN906 (yellow) 2P
❼ Screws
(B2.6×6)
❸ Connector (red) 3P
(DC/DC converter)
❻ Connector
CN008 (white) 2P
❷ Connector
CN407 (black) 4P,
EM-2 board
❺ Connector
CN703 (white) 7P
FC-15 board
❶ Connector
CN906 (white) 3P
❾ Camera section
❽ VTR section

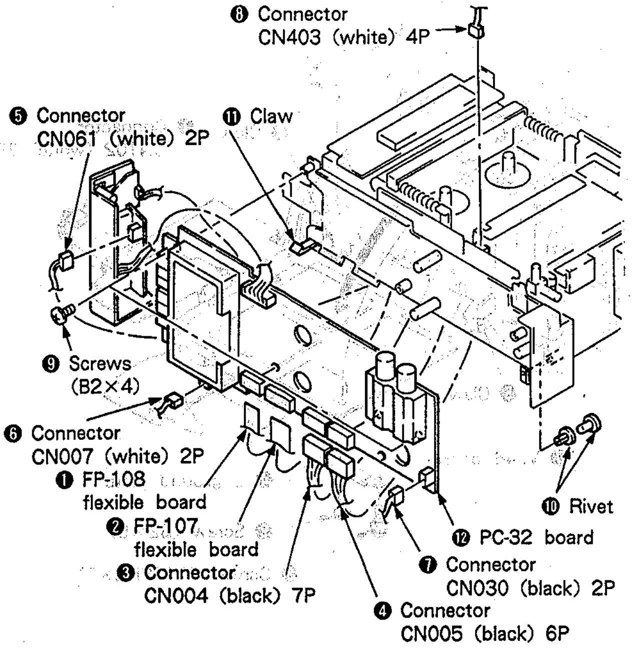
2-6. REMOVAL OF THE VR-17 BOARD (TRIPOD TABLE)

1) Disconnect the connector CN011 ❶.
2) Remove the screw ❷ and remove the VR-17 board ❸.
3) Remove the three screws ❹ and remove the tripod table ❺.


❹ Screws
(B2.6×6)
❶ Connector
CN011 (white) 5P
❷ Screw
(B2.6×6)
❺ Tripod table
❸ VR-17 board

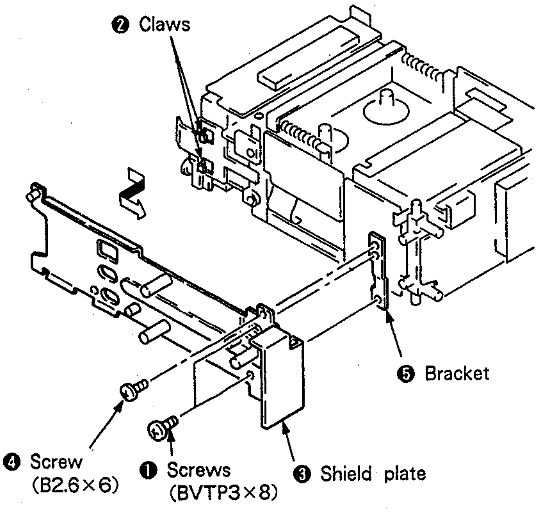
2-7. REMOVAL OF THE PC-32 BOARD

1) Remove the FP-108 flexible board ❶ and FP-107 flexible board ❷.
2) Disconnect the connectors CN004 ❸, CN005 ❹, CN061 ❺, CN007 ❻, CN030 ❼ and CN403 ❽.
3) Remove the four screws ❾ and remove the rivet ❿.
4) Remove the claw ⓫ and remove the PC-32 board ⓬.


❽ Connector
CN403 (white) 4P
❺ Connector
CN061 (white) 2P
⓫ Claw
❾ Screws
(B2×4)
❻ Connector
CN007 (white) 2P
❶ FP-108
flexible board
❷ FP-107
flexible board
❸ Connector
CN004 (black) 7P
❿ Rivet
⓬ PC-32 board
❼ Connector
CN030 (black) 2P
❹ Connector
CN005 (black) 6P

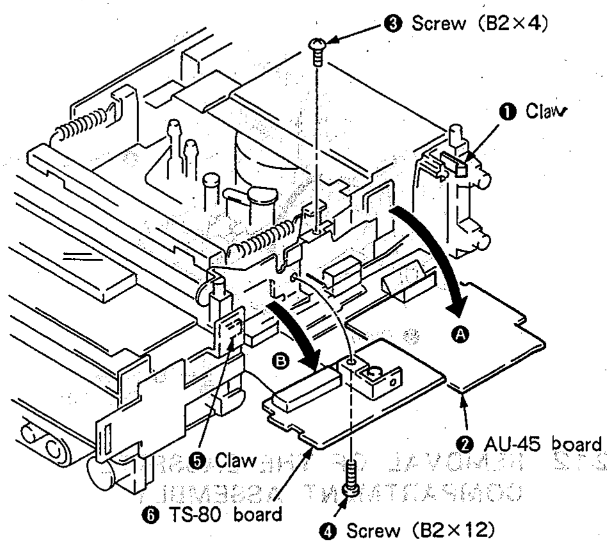
2-8. REMOVAL OF THE SHIELD PLATE

1) Remove the two screws ❶.
2) Remove the shield plate ❸ by pulling it off the two claws ❷ in the direction of the arrow.
3) Remove the screw ❹ and remove the bracket ❺.


❷ Claws
❺ Bracket
❹ Screw
(B2.6×6)
❶ Screws
(BVTP3×8)
❸ Shield plate

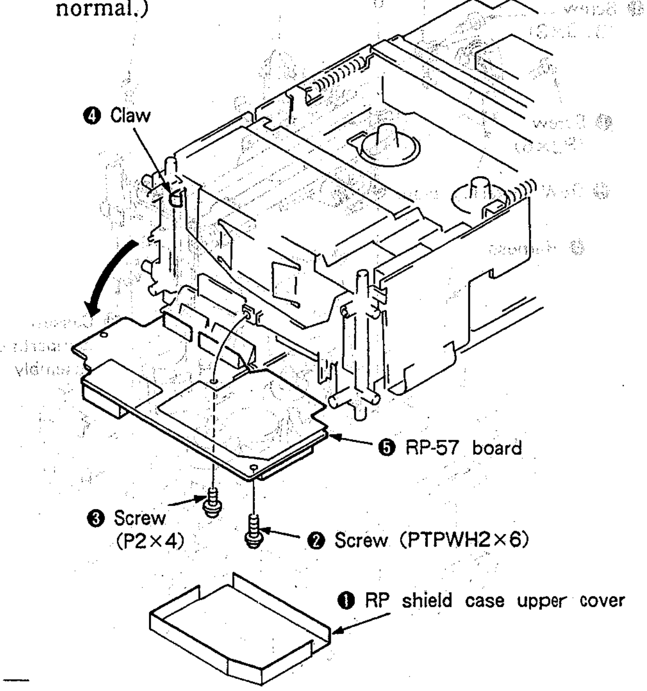
2-9. OPENING OF THE AU-45 BOARD AND THE TS-80 BOARD

1) Open the AU-45 board ❷ in the direction of arrow Ⓐ by releasing it from the claw ❶. (There is a loud sound when opening. This is normal.)
2) Remove screw ❸ and screw ❹.
3) Open the TS-80 board ❻ in the direction of arrow Ⓑ by releasing it from the claw ❺.


❸ Screw (B2×4)
❶ Claw
Ⓐ
Ⓑ
❺ Claw
❷ AU-45 board
❻ TS-80 board
❹ Screw (B2×12)

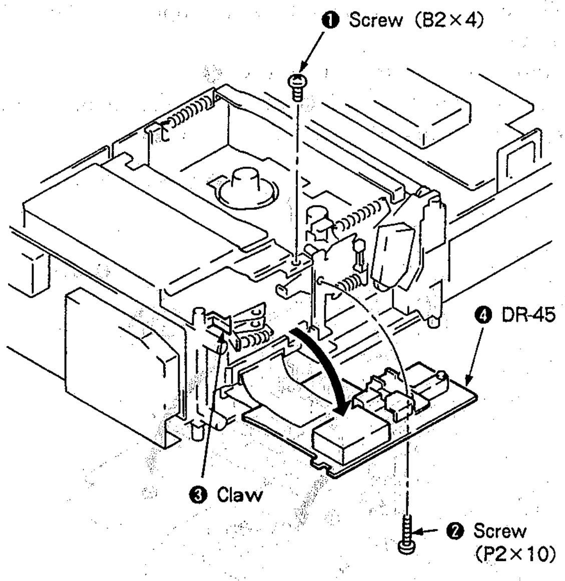
2-10. OPENING OF THE RP-57 BOARD

1) Remove the RP shield case upper cover ❶.
2) Remove screw ❷ and screw ❸.
3) Open the RP-57 board ❺ in the direction of the arrow by releasing it from the claw ❹. (There is a loud sound when opening. This is normal.)


❹ Claw
❺ RP-57 board
❸ Screw
(P2×4)
❷ Screw (PTPWH2×6)
❶ RP shield case upper cover

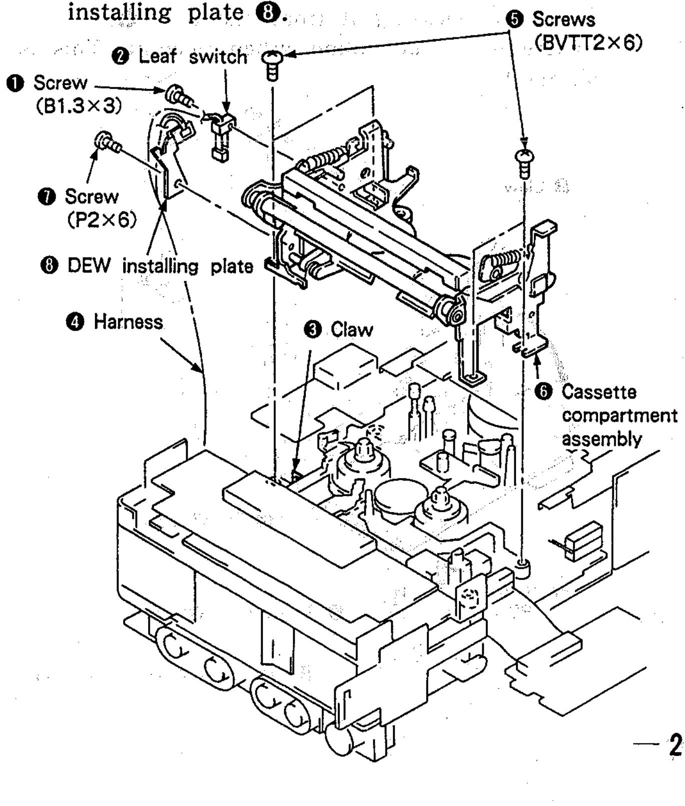
2-11. OPENING OF THE DR-45 BOARD

1) Remove screw ❶ and screw ❷.
2) Open the DR-45 board ❹ in the direction of the arrow by releasing it from the claw ❸.


❶ Screw (B2×4)
❹ DR-45 board
❸ Claw
❷ Screw (P2×10)

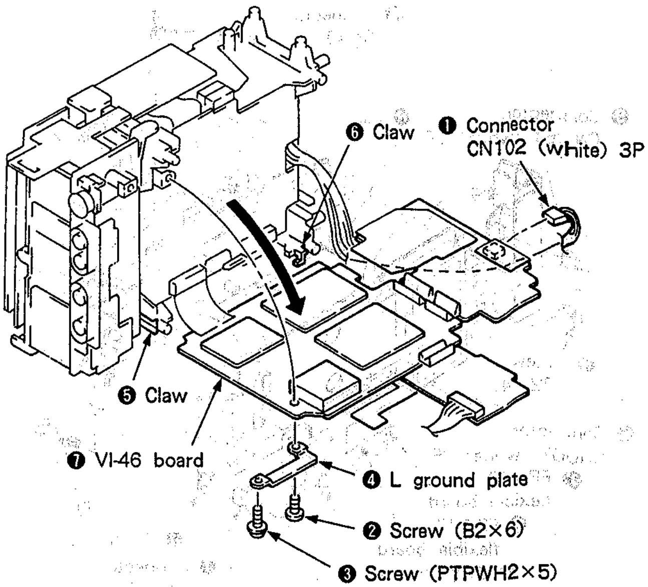
2-12. REMOVAL OF THE CASSETTE COMPARTMENT ASSEMBLY

1) Open the TS-80 board by referring to 2-9.
2) Open the DR-45 board by referring to 2-11.
3) Remove the screw ❶ and remove the leaf switch ❷.
4) Remove the harness ❹ from the claw ❸.
5) Remove the four screws ❺ and remove the cassette compartment assembly ❻.
6) Remove the screw ❼ and remove the DEW installing plate ❽.


❺ Screws (BVTT2×6)
❷ Leaf switch
❶ Screw (B1.3×3)
❼ Screw (P2×6)
❽ DEW installing plate
❹ Harness
❸ Claw
❻ Cassette compartment assembly

2-13. OPENING OF THE VI-46 BOARD

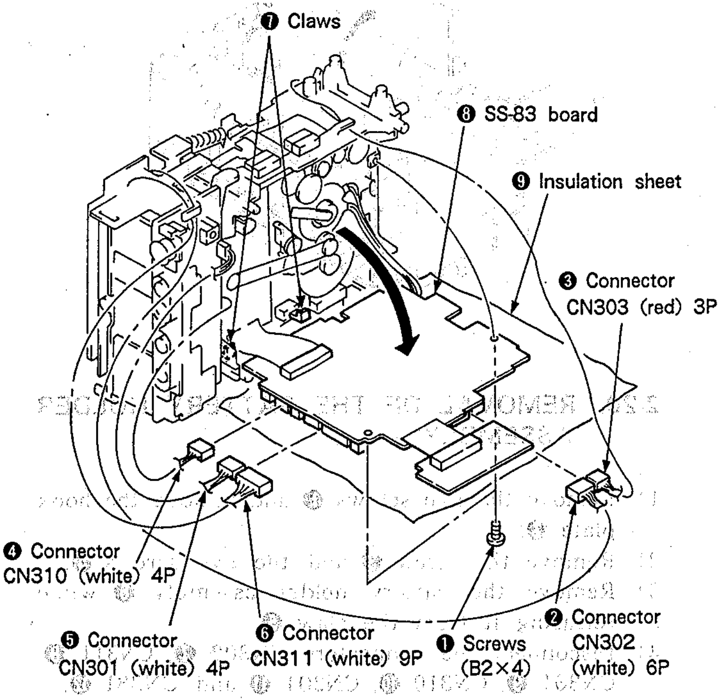
1) Open the AU-45 board by referring to 2-9.
2) Open the RP-57 board by referring to 2-10.
3) Disconnect the connector CN102 ❶.
4) Remove screw ❷ and screw ❸, and remove the L ground plate ❹.
5) Unhook the claw ❺ and open the VI-46 board ❼ in the direction of the arrow while releasing it from the other claw ❻.


❻ Claw
❶ Connector CN102 (white) 3P
❺ Claw
❼ VI-46 board
❹ L ground plate
❷ Screw (B2×6)
❸ Screw (PTPWH2×5)

2-14. OPENING OF THE SS-83 BOARD

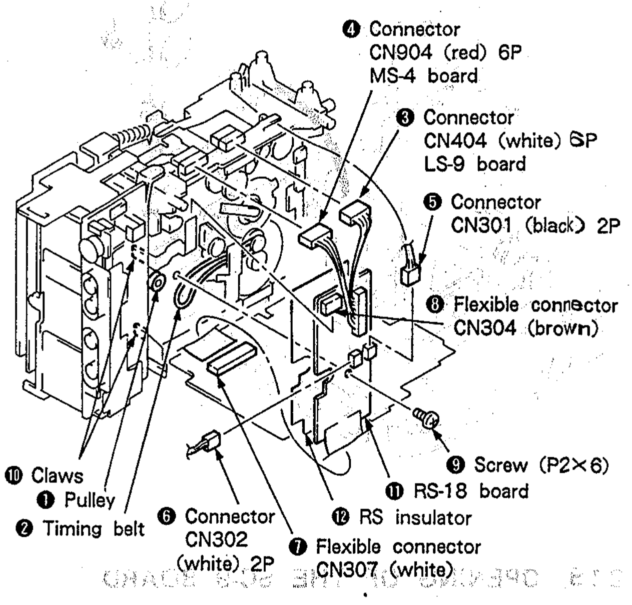
1) Open the VI-46 board by referring to 2-13.
2) Open the TS-80 board by referring to 2-9.
3) Remove the two screws ❶.
4) Disconnect the connectors CN302 ❷, CN301 ❸, CN310 ❹, CN301 ❺ and CN311 ❻.
5) Unhook two claws ❼, and open the SS-83 board ❽ in the direction of the arrow.

Note : When opening the SS-83 board ❽, insert an insulation sheet ❾ between the VI-46 and the SS-83 boards.


❼ Claws
❽ SS-83 board
❾ Insulation sheet
❸ Connector
CN303 (red) 3P
❹ Connector
CN310 (white) 4P
❺ Connector
CN301 (white) 4P
❻ Connector
CN311 (white) 9P
❶ Screws
(B2×4)
❷ Connector
CN302
(white) 6P

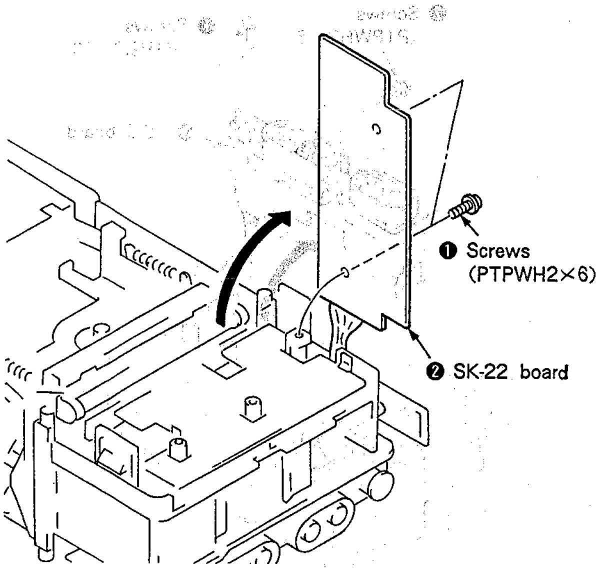
2-15. REMOVAL OF THE RS-18 BOARD

1) Open the SS-83 board by referring to 2-14.
2) Remove the timing belt ❷ from the pulley ❶.
3) Disconnect the connectors (LS-9 board) ❸, (MS-4 board) ❹, CN301 ❺, CN302 ❻, and the flexible connectors CN307 ❼ and CN304 ❽.
4) Remove the screw ❾.
5) Remove the RS-18 board ⓫ while releasing two claws ❿.
6) Remove the RS insulator ⓬.


❹ Connector
CN904 (red) 6P
MS-4 board
❸ Connector
CN404 (white) 6P
LS-9 board
❺ Connector
CN301 (black) 2P
❽ Flexible connector
CN304 (brown)
❾ Screw (P2×6)
⓫ RS-18 board
⓬ RS insulator
❼ Flexible connector
CN307 (white)
❻ Connector
CN302
(white) 2P
❿ Claws
❶ Pulley
❷ Timing belt

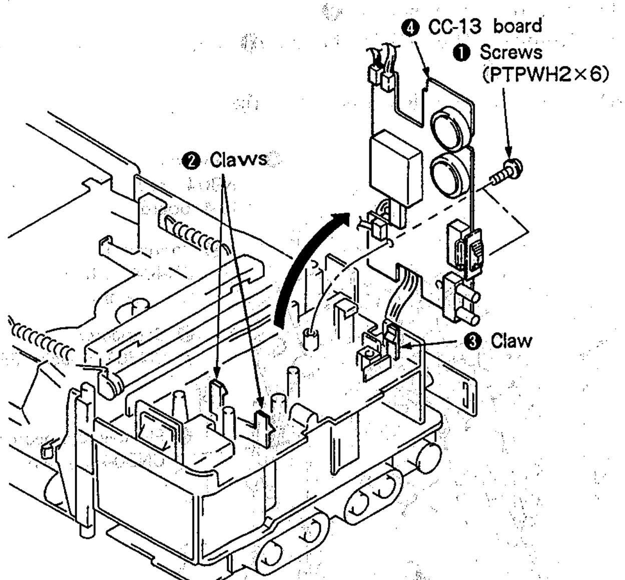
2-16. OPENING OF THE SK-22 BOARD

1) Remove the two screws ❶ and open the SK-22 board ❷ in the direction of the arrow.


❶ Screws
(PTPWH2×6)
❷ SK-22 board

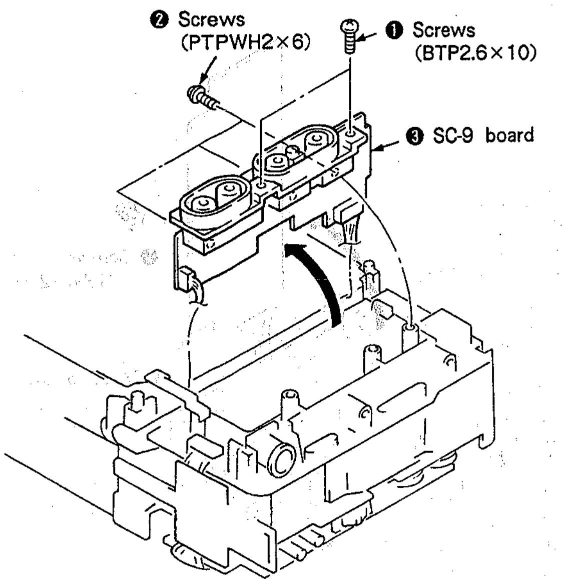
2-17. OPENING OF THE CC-13 BOARD

1) Open the SK-22 board by referring to 2-16.
2) Remove the two screws ❶.
3) Release two claws ❷, and open the CC-13 board ❹ in the direction of the arrow while releasing the last claw ❸.


❹ CC-13 board
❶ Screws
(PTPWH2×6)
❷ Claws
❸ Claw

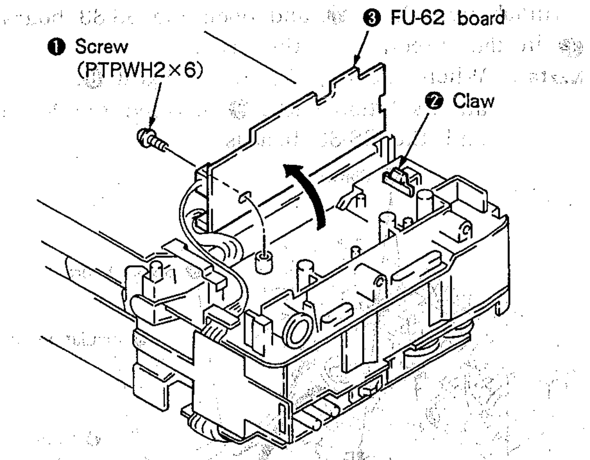
2-18. OPENING OF THE SC-9 BOARD

1) Remove the two screws ❶ and the three screws ❷.
2) Open the SC-9 board ❸ in the direction of the arrow.


❷ Screws
(PTPWH2×6)
❶ Screws
(BTP2.6×10)
❸ SC-9 board

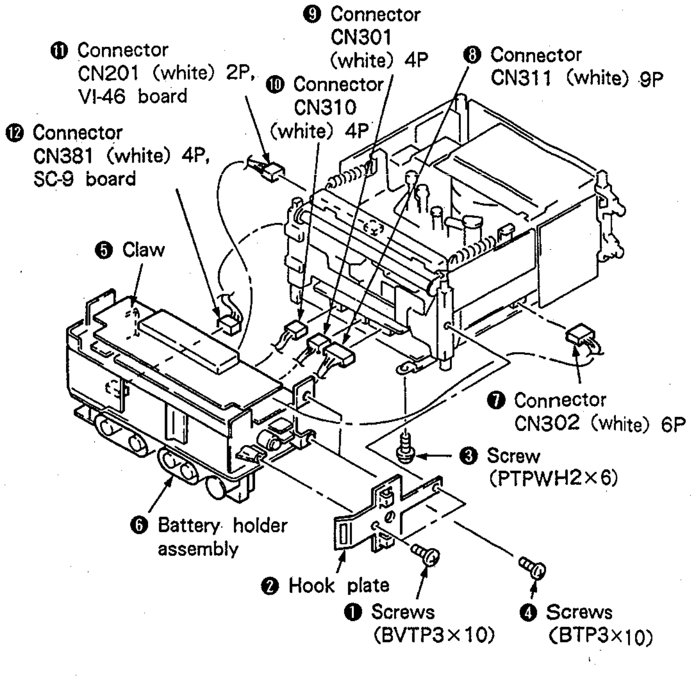
2-19. OPENING OF THE FU-62 BOARD

1) Open the SC-9 board by referring to 2-18.
2) Remove the screw ❶.
3) Release the claw ❷, and open the FU-62 board ❸ in the direction of the arrow.


❸ FU-62 board
❶ Screw
(PTPWH2×6)
❷ Claw

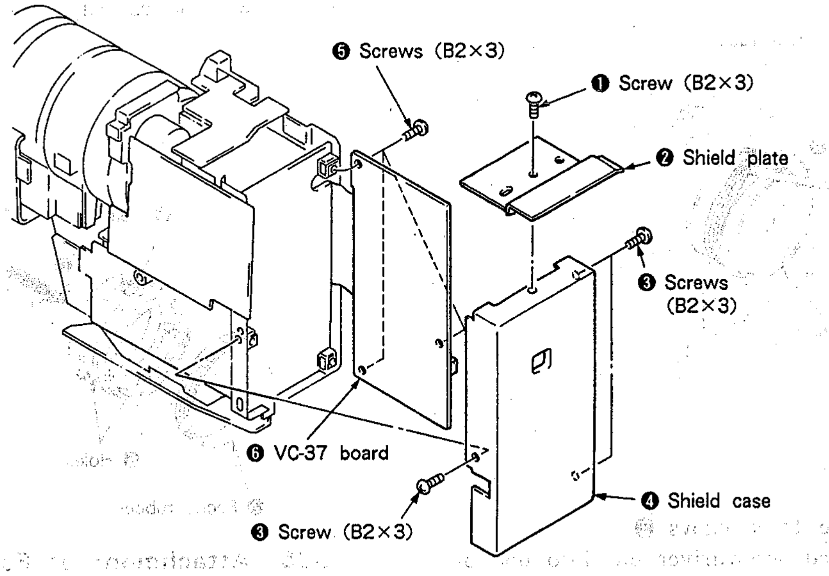
2-20. REMOVAL OF THE BATTERY HOLDER ASSEMBLY

1) Remove the two screws ❶ and remove the hook plate ❷.
2) Remove the screw ❸ and the two screws ❹.
3) Remove the battery holder assembly ❻ while releasing it from the claw ❺.
4) Disconnect the connectors CN302 ❼, CN311 ❽, CN301 ❾, CN310 ❿, CN201 ⓫ and CN381 ⓬.


❾ Connector
CN301
(white) 4P
⓫ Connector
CN201 (white) 2P,
VI-46 board
❽ Connector
CN311 (white) 9P
❿ Connector
CN310
(white) 4P
⓬ Connector
CN381 (white) 4P,
SC-9 board
❺ Claw
❼ Connector
CN302 (white) 6P
❸ Screw
(PTPWH2×6)
❻ Battery holder
assembly
❷ Hook plate
❶ Screws
(BVTP3×10)
❹ Screws
(BTP3×10)

2-21. OPENING OF THE VC-37 BOARD

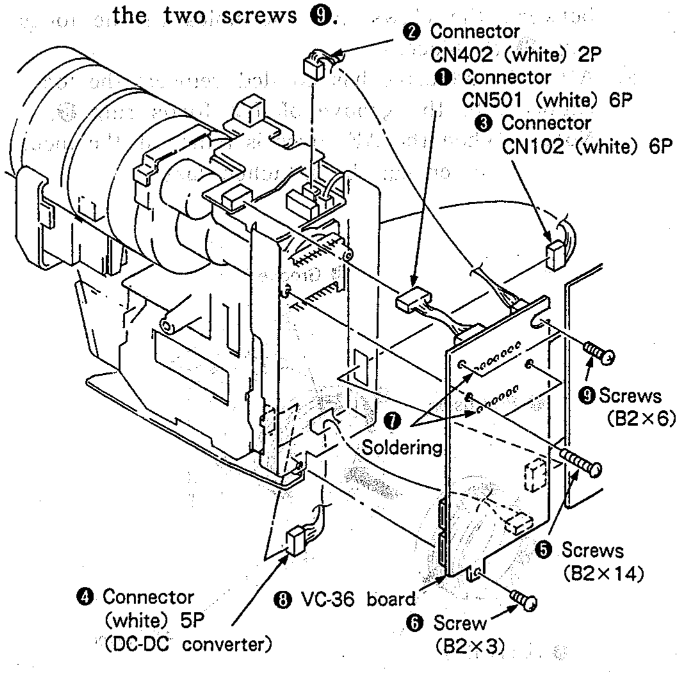
1) Remove the screw ❶ and remove the shield plate ❷.
2) Remove the three screws ❸ and remove the shield case ❹.
3) Remove the three screws ❺ and open the VC-37 board ❻.


❺ Screws (B2×3)
❶ Screw (B2×3)
❷ Shield plate
❸ Screws (B2×3)
❻ VC-37 board
❹ Shield case
❸ Screw (B2×3)

2-22. REMOVAL OF THE VC-36 BOARD

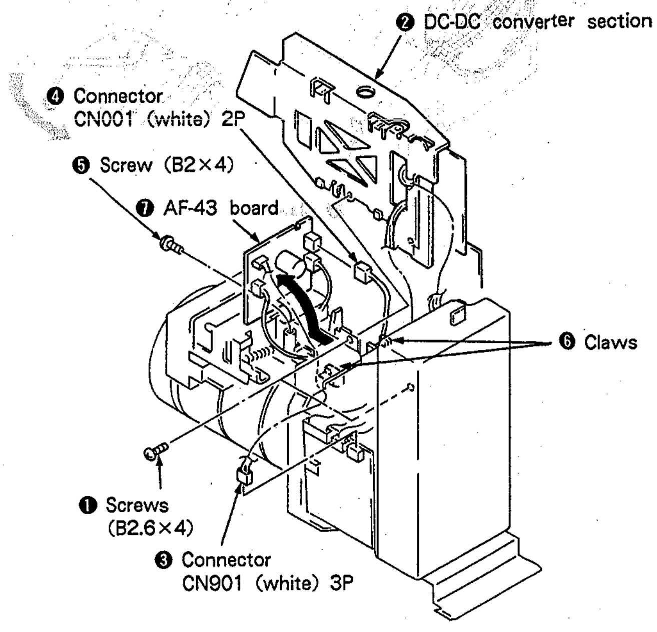
1) Open the VC-37 board by referring to 2-21.
2) Disconnect the connectors CN501 ❶, CN402 ❷, CN102 ❸, (DC-DC converter) ❹.
3) Remove the two screws ❺ and the screw ❻.
4) Unsolder at twenty places (CCD imager) ❼, and remove the VC-36 board ❽.

Note : When the CCD imager is not removed, the VC-37 board can be removed by unscrewing the two screws ❾.


❷ Connector CN402 (white) 2P
❶ Connector CN501 (white) 6P
❸ Connector CN102 (white) 6P
❾ Screws (B2×6)
❼ Soldering
❺ Screws (B2×14)
❹ Connector (white) 5P (DC-DC converter)
❽ VC-36 board
❻ Screw (B2×3)

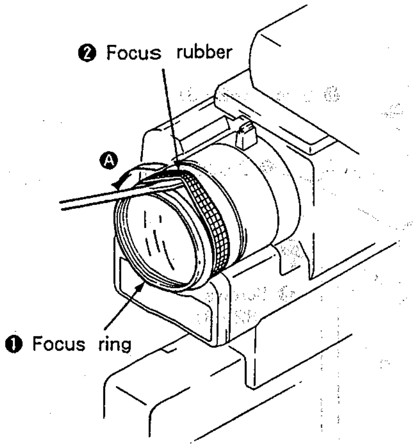
2-23. OPENING OF THE AF-43 BOARD

1) Remove the two screws ❶ and remove the DC-DC converter section ❷.
2) Disconnect the connectors CN901 ❸ and CN001 ❹.
3) Remove the screw ❺.
4) Open the AF-43 board ❼ in the direction of the arrow while releasing it from the two claws ❻.

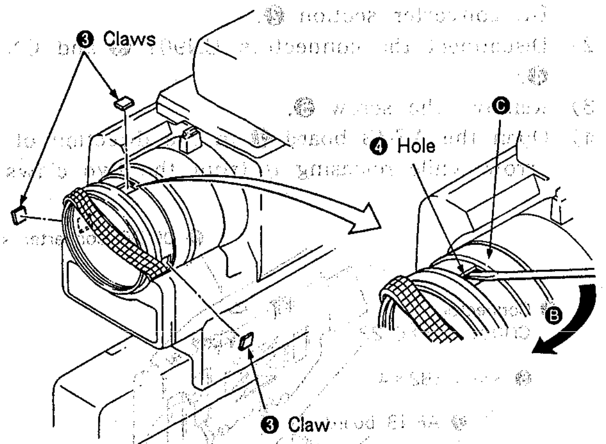

❷ DC-DC converter section
❹ Connector CN001 (white) 2P
❺ Screw (B2×4)
❼ AF-43 board
❻ Claws
❶ Screws (B2.6×4)
❸ Connector CN901 (white) 3P

2-24. REMOVAL OF THE FOCUS RING

1) Turn the focus ring ❶ fully in the direction of arrow Ⓐ.
2) Lift off the focus rubber ❷ in the groove of the focus ring ❶ using a sloted screwdriver etc.

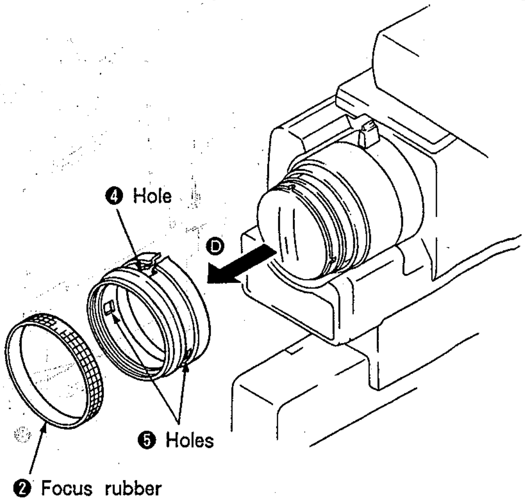


3) Take out the three claws ❸.
4) Insert a sloted screwdriver etc. into one of the hole ❹ in the focus ring groove and turn in the direction of arrow Ⓑ to make a cut in section Ⓒ of the focus ring.



5) Insert a sloted screwdriver etc. into hole ❹ and holes ❺ (2 places) as shown in step 4), and force off the focus ring ❶ which is fixed to the zoom lens with adhesive to remove it in the direction of arrow Ⓓ.

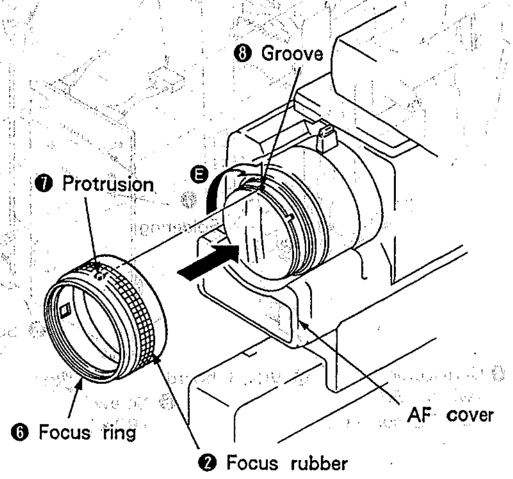
Note : Be carefully not to scratch the lens.



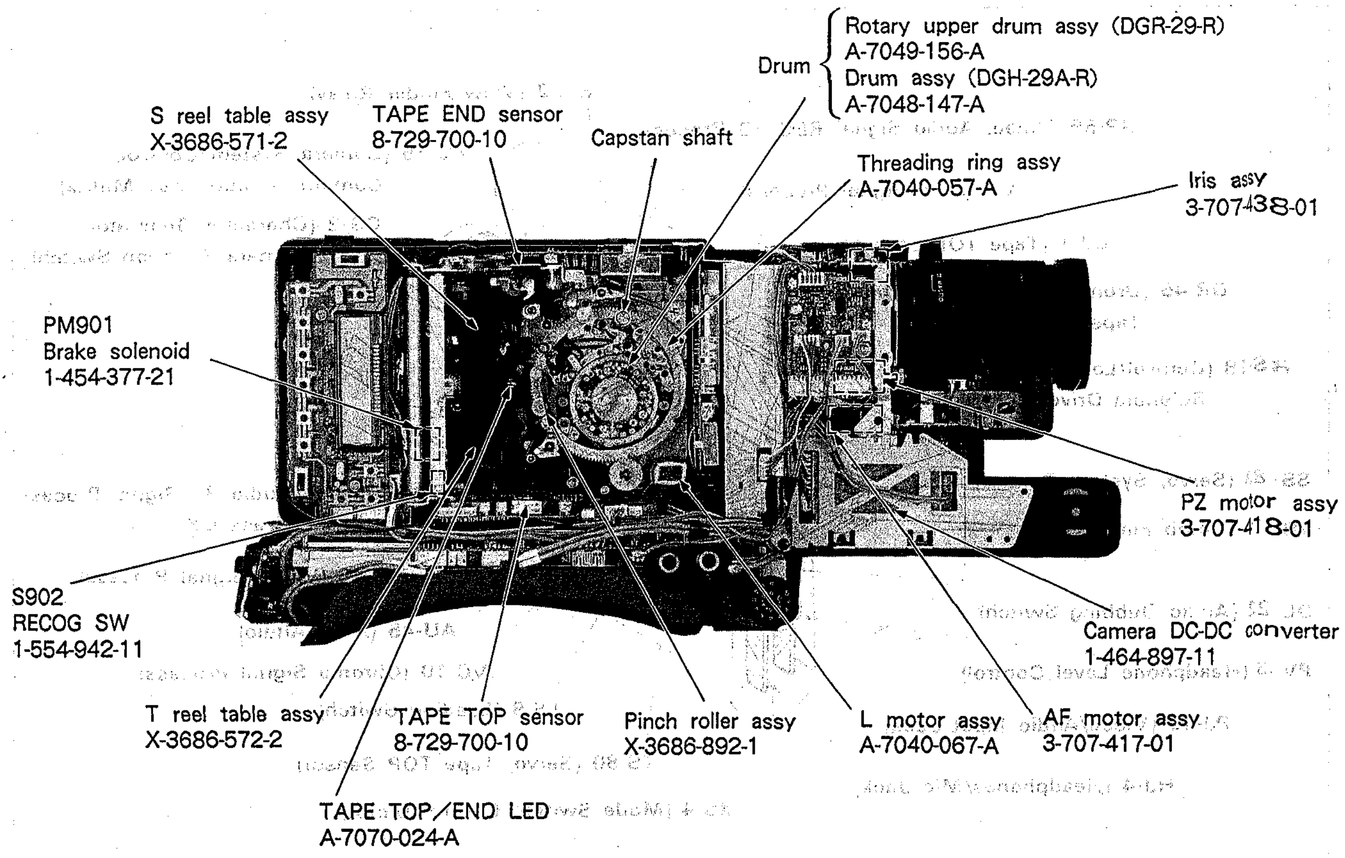
2-25. Attachment of Focus Ring

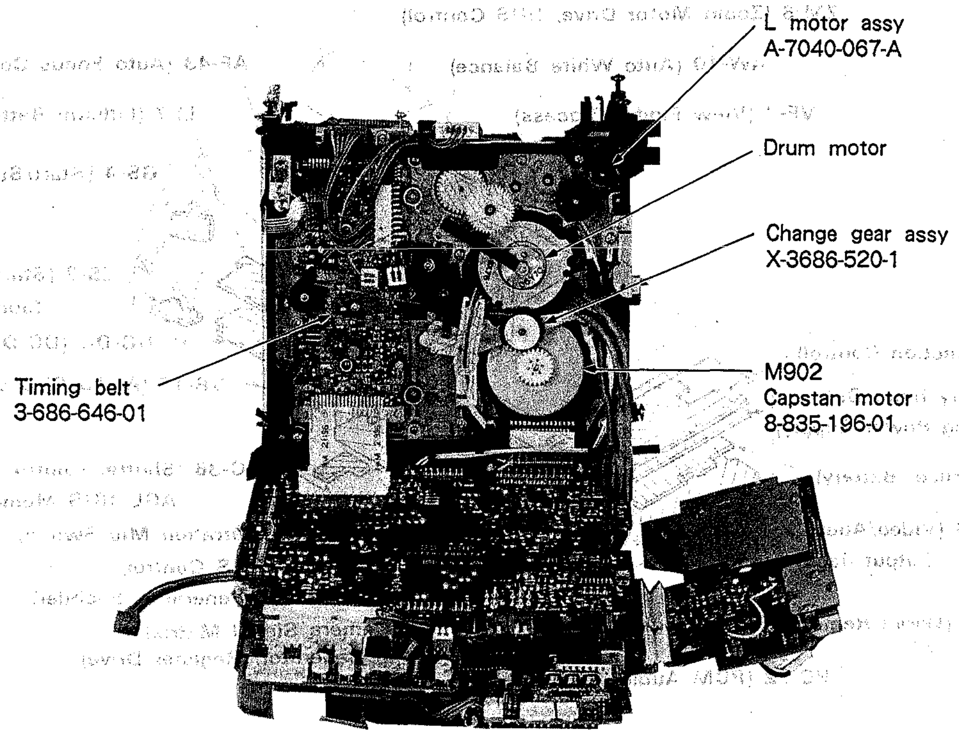
1) Attach the focus rubber ❷ to a new focus ring ❻.
2) Rotate the end of the zoom lens fully in the direction of arrow Ⓔ.
3) Mount the focus ring ❻ by aligning the protrusions ❼ in the focus ring with the grooves ❽ at the end of the zoom lens.
4) Lift off the focus rubber ❷ in the groove of the focus ring as described in steps 1) and 2) under "Removal".
5) Apply a small amount of adhesive in the spaces between the claws and the holes in the focus ring ❻ (3 places).
6) After the adhesive has bonded, reinsert the focus rubber into the groove of the focus ring ❻.

Note : When the AF cover is removed, the focus rubber can be attached last.



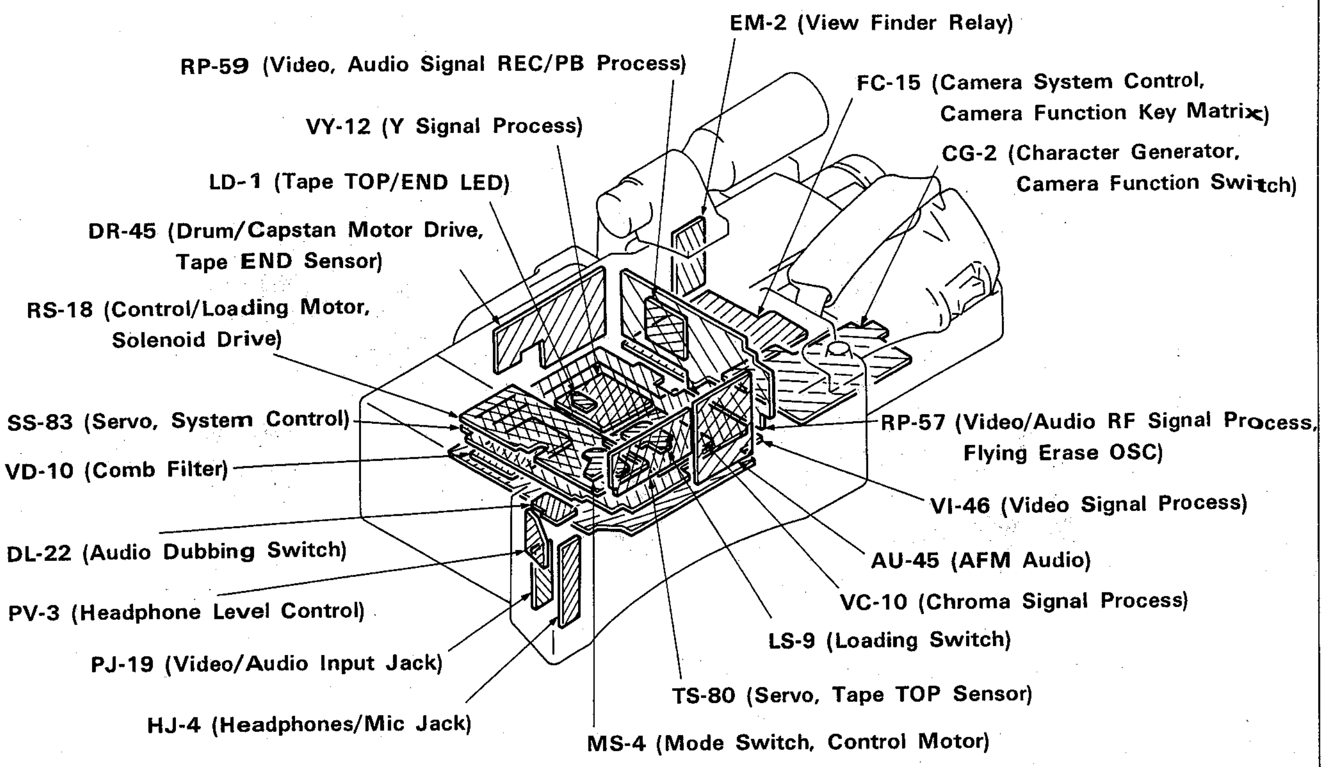
2-26. INTERNAL VIEWS

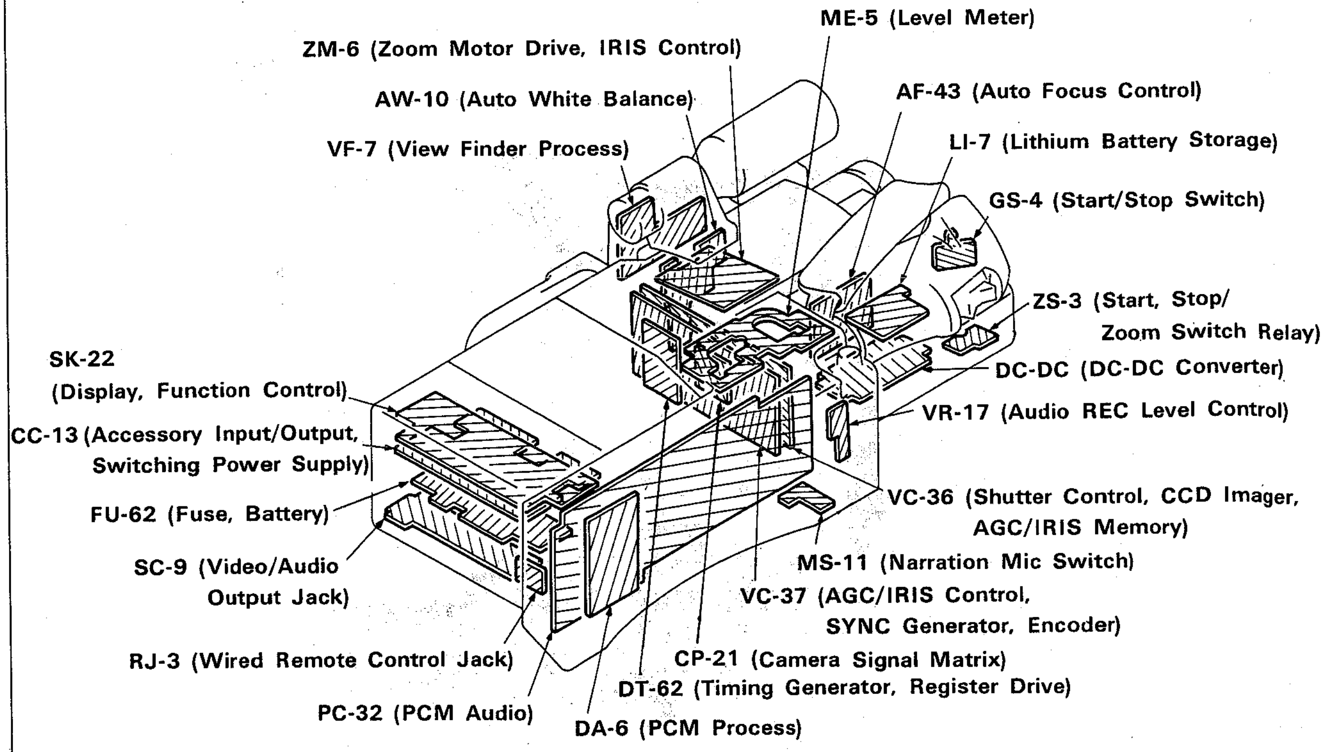

Drum
Rotary upper drum assy (DGR-29-R)
A-7049-156-A
Drum assy (DGH-29A-R)
A-7048-147-A
S reel table assy
X-3686-571-2
TAPE END sensor
8-729-700-10
Capstan shaft
Threading ring assy
A-7040-057-A
Iris assy
3-707438-01
PM901
Brake solenoid
1-454-377-21
PZ motor assy
3-707-418-01
S902
RECOG SW
1-554-942-11
Camera DC-DC converter
1-464-897-11
T reel table assy
X-3686-572-2
TAPE TOP sensor
8-729-700-10
Pinch roller assy
X-3686-892-1
L motor assy
A-7040-067-A
AF motor assy
3-707-417-01
TAPE TOP/END LED
A-7070-024-A


L motor assy
A-7040-067-A
Drum motor
Change gear assy
X-3686-520-1
Timing belt
3-686-646-01
M902
Capstan motor
8-835-196-01

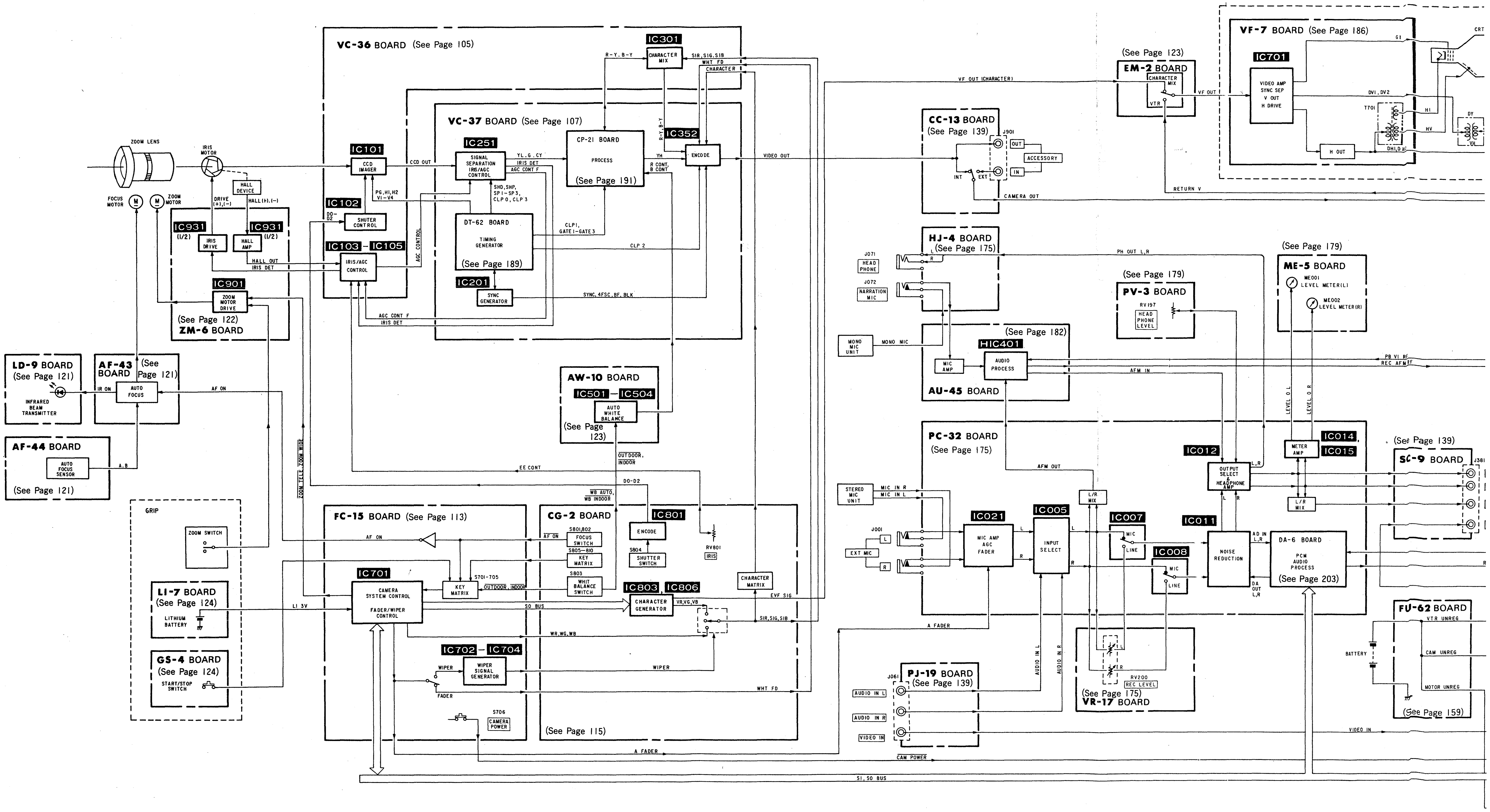
SECTION 3
DIAGRAMS

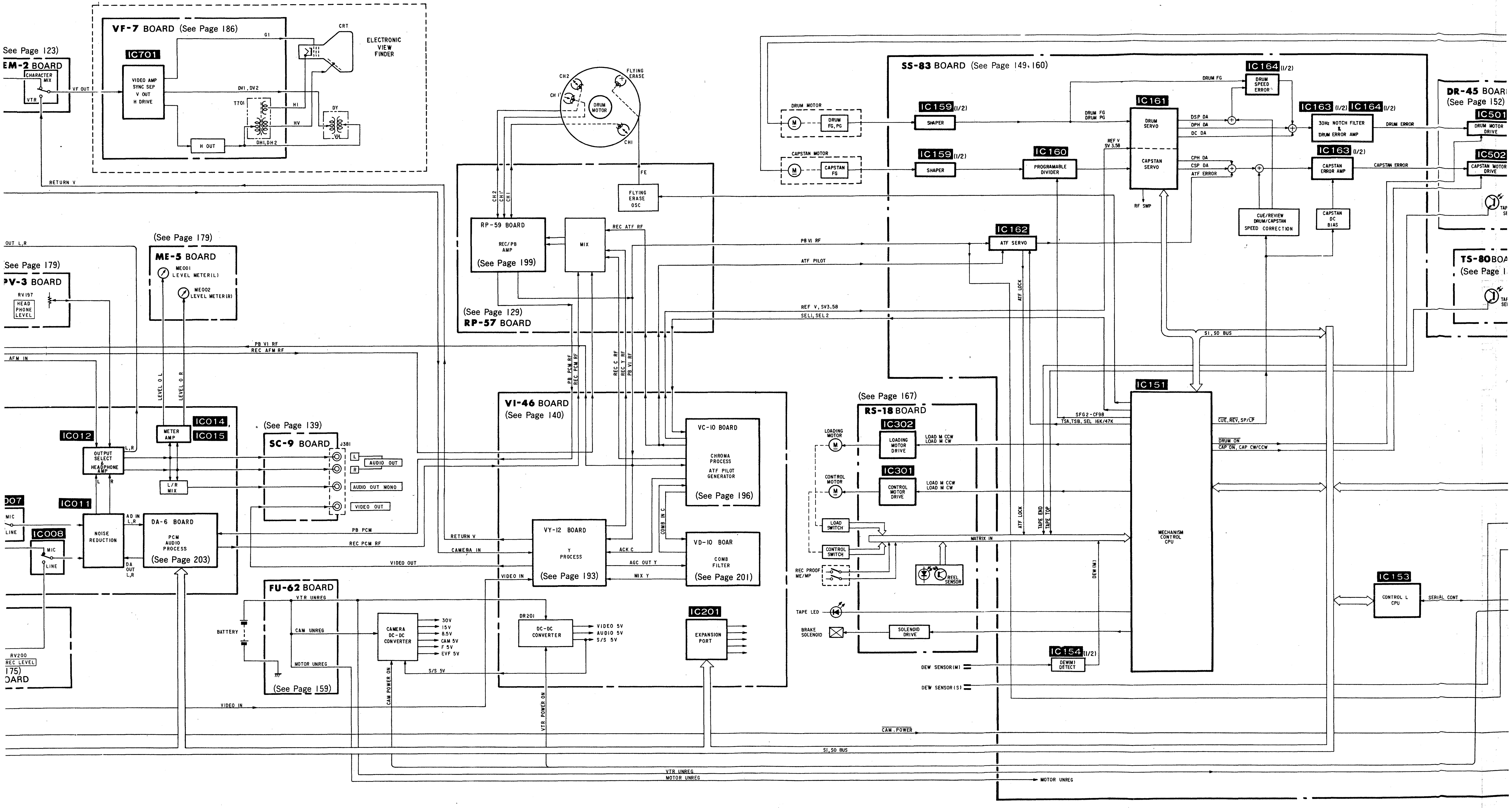
3-1. CIRCUIT BOARDS LOCATION

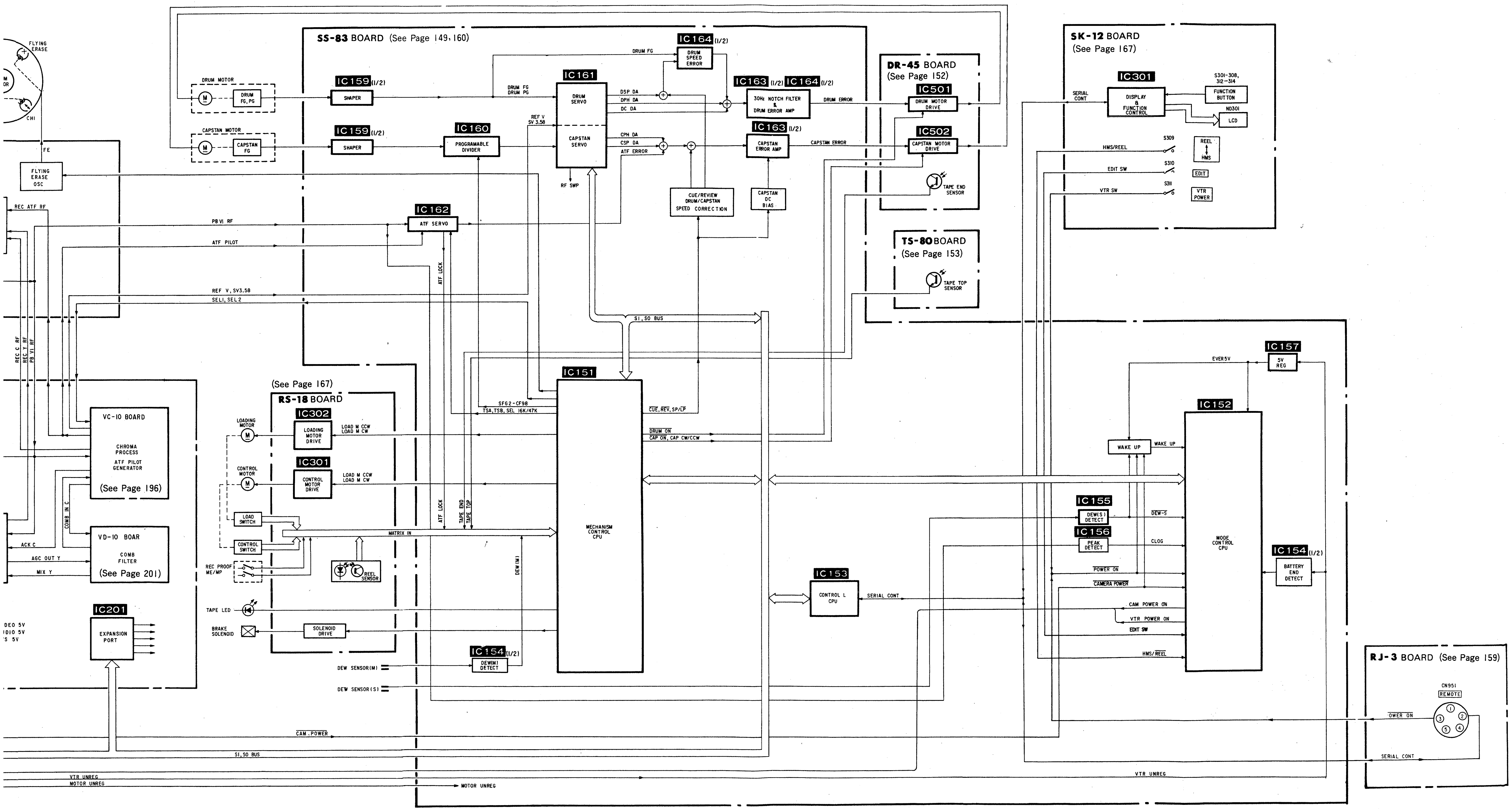

EM-2 (View Finder Relay)
RP-59 (Video, Audio Signal REC/PB Process)
FC-15 (Camera System Control, Camera Function Key Matrix)
VY-12 (Y Signal Process)
CG-2 (Character Generator, Camera Function Switch)
LD-1 (Tape TOP/END LED)
DR-45 (Drum/Capstan Motor Drive, Tape END Sensor)
RS-18 (Control/Loading Motor, Solenoid Drive)
SS-83 (Servo, System Control)
RP-57 (Video/Audio RF Signal Process, Flying Erase OSC)
VD-10 (Comb Filter)
VI-46 (Video Signal Process)
DL-22 (Audio Dubbing Switch)
AU-45 (AFM Audio)
PV-3 (Headphone Level Control)
VC-10 (Chroma Signal Process)
PJ-19 (Video/Audio Input Jack)
LS-9 (Loading Switch)
TS-80 (Servo, Tape TOP Sensor)
HJ-4 (Headphones/Mic Jack)
MS-4 (Mode Switch, Control Motor)


ME-5 (Level Meter)
ZM-6 (Zoom Motor Drive, IRIS Control)
AF-43 (Auto Focus Control)
AW-10 (Auto White Balance)
LI-7 (Lithium Battery Storage)
VF-7 (View Finder Process)
GS-4 (Start/Stop Switch)
ZS-3 (Start, Stop/ Zoom Switch Relay)
SK-22 (Display, Function Control)
DC-DC (DC-DC Converter)
CC-13 (Accessory Input/Output, Switching Power Supply)
VR-17 (Audio REC Level Control)
FU-62 (Fuse, Battery)
VC-36 (Shutter Control, CCD Imager, AGC/IRIS Memory)
SC-9 (Video/Audio Output Jack)
MS-11 (Narration Mic Switch)
VC-37 (AGC/IRIS Control, SYNC Generator, Encoder)
RJ-3 (Wired Remote Control Jack)
CP-21 (Camera Signal Matrix)
DT-62 (Timing Generator, Register Drive)
PC-32 (PCM Audio)
DA-6 (PCM Process)

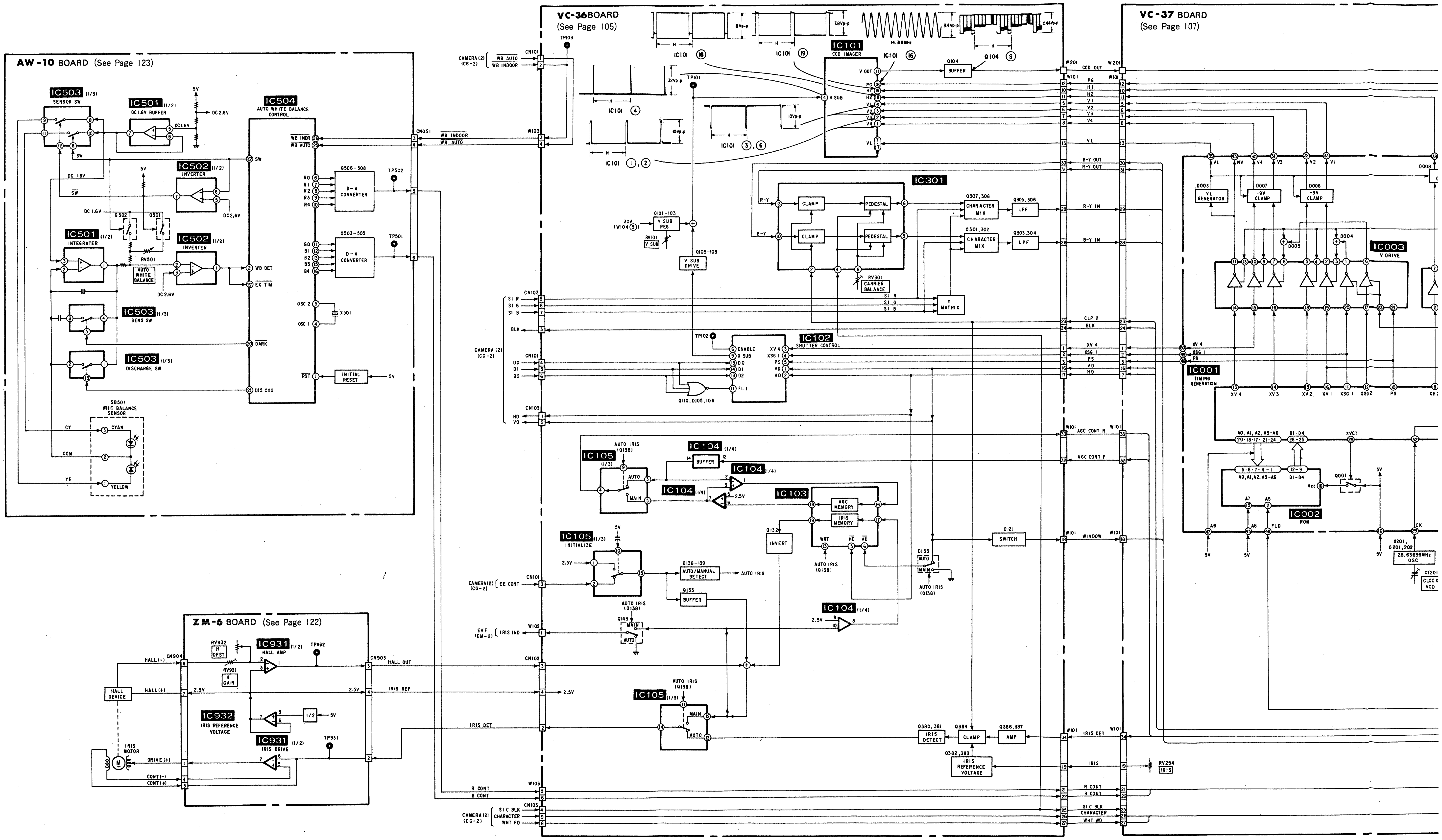
3-2. OVERALL BLOCK DIAGRAM

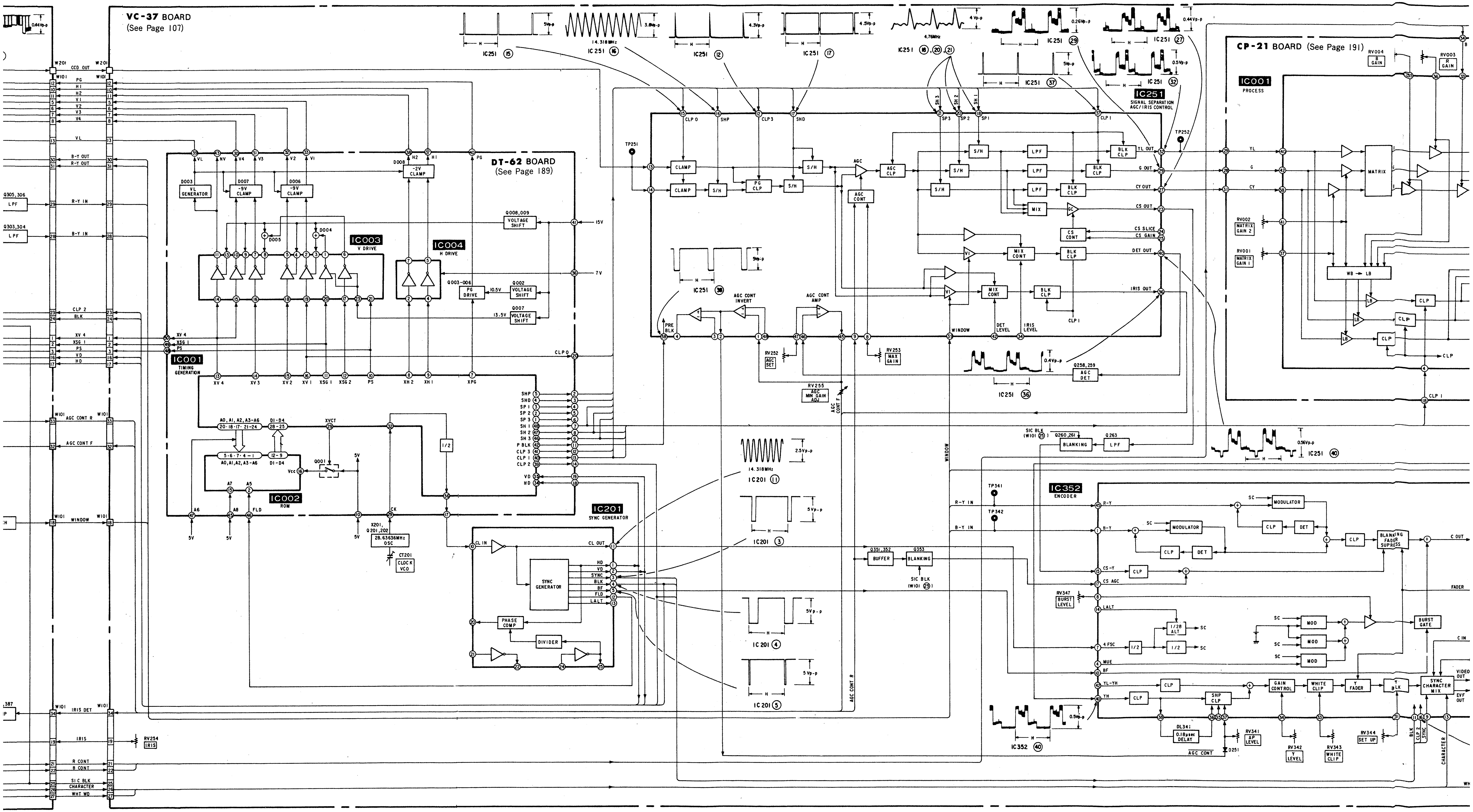

VC-36 BOARD (See Page 105)
VC-37 BOARD (See Page 107)
IC301
CHARACTER MIX
IC352
ENCODE
CP-21 BOARD
PROCESS
(See Page 191)
IC101
CCD IMAGER
IC251
SIGNAL SEPARATION IRIS/AGC CONTROL
IC102
SHUTER CONTROL
IC103 - IC105
IRIS/AGC CONTROL
DT-62 BOARD
TIMING GENERATOR
(See Page 189)
IC201
SYNC GENERATOR
ZOOM LENS
IRIS MOTOR
FOCUS MOTOR
ZOOM MOTOR
HALL DEVICE
IC931
IRIS DRIVE
HALL AMP
IC901
ZOOM MOTOR DRIVE
(See Page 122)
ZM-6 BOARD
LD-9 BOARD (See Page 121)
INFRARED BEAM TRANSMITTER
AF-43 BOARD (See Page 121)
AUTO FOCUS
AF-44 BOARD
AUTO FOCUS SENSOR
(See Page 121)
AW-10 BOARD
IC501 - IC504
AUTO WHITE BALANCE
(See Page 123)
GRIP
ZOOM SWITCH
LI-7 BOARD (See Page 124)
LITHIUM BATTERY
GS-4 BOARD (See Page 124)
START/STOP SWITCH
FC-15 BOARD (See Page 113)
IC701
CAMERA SYSTEM CONTROL
FADER/WIPER CONTROL
KEY MATRIX
IC702 - IC704
WIPER SIGNAL GENERATOR
S706 CAMERA POWER
CG-2 BOARD
S801,802 FOCUS SWITCH
S805-810 KEY MATRIX
S803 WHIT BALANCE SWITCH
IC801
ENCODE
S804 SHUTTER SWITCH
RV801 IRIS
IC803, IC806
CHARACTER GENERATOR
CHARACTER MATRIX
(See Page 115)
VF OUT (CHARACTER)
VIDEO OUT
CAMERA OUT
RETURN V
SI, SO BUS
A FADER
CAM POWER
EM-2 BOARD (See Page 123)
CHARACTER MIX
VF-7 BOARD (See Page 186)
IC701
VIDEO AMP SYNC SEP V OUT H DRIVE
H OUT
T701
CRT
DY
CC-13 BOARD (See Page 139)
J901
ACCESSORY
HJ-4 BOARD (See Page 175)
HEAD PHONE
NARRATION MIC
MONO MIC UNIT
AU-45 BOARD
HIC401
MIC AMP
AUDIO PROCESS
(See Page 182)
PV-3 BOARD (See Page 179)
RV197 HEAD PHONE LEVEL
ME-5 BOARD (See Page 179)
ME001 LEVEL METER(L)
ME002 LEVEL METER(R)
PC-32 BOARD (See Page 175)
STEREO MIC UNIT
EXT MIC
IC021
MIC AMP AGC FADER
IC005
INPUT SELECT
IC007
IC008
MIC
LINE
IC011
NOISE REDUCTION
IC012
OUTPUT SELECT & HEADPHONE AMP
IC014, IC015
METER AMP
L/R MIX
DA-6 BOARD
PCM AUDIO PROCESS
(See Page 203)
VR-17 BOARD (See Page 159)
RV200 REC LEVEL
PJ-19 BOARD (See Page 139)
AUDIO IN L
AUDIO IN R
VIDEO IN
SC-9 BOARD (See Page 139)
FU-62 BOARD
BATTERY
VTR UNREG
CAM UNREG
MOTOR UNREG
(See Page 159)

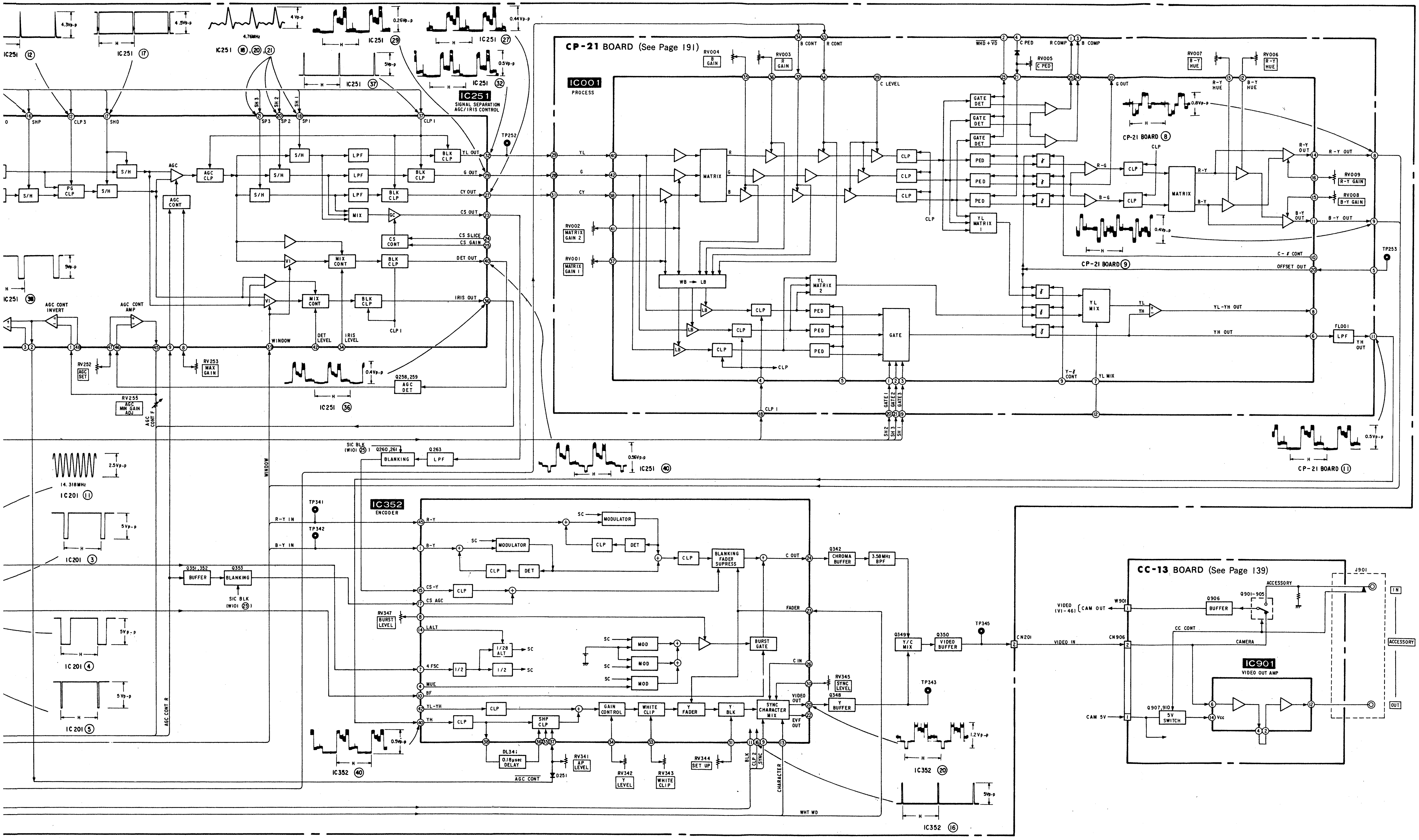

VF-7 BOARD (See Page 186)
IC701
VIDEO AMP SYNC SEP V OUT H DRIVE
H OUT
T701
CRT
ELECTRONIC VIEW FINDER
DY
G1
DV1, DV2
DH1, DH2
HI
HV
See Page 123)
EM-2 BOARD
CHARACTER MIX
VTR
VF OUT
RETURN V
CH2
CH1'
CH1
DRUM MOTOR
FLYING ERASE
FE
FLYING ERASE OSC
RP-59 BOARD
REC/PB AMP
(See Page 199)
MIX
REC ATF RF
(See Page 129)
RP-57 BOARD
(See Page 179)
ME-5 BOARD
ME001 LEVEL METER(L)
ME002 LEVEL METER(R)
(See Page 179)
PV-3 BOARD
RV197
HEAD PHONE LEVEL
OUT L,R
AFM IN
PB VI RF
REC AFM RF
LEVEL O L
LEVEL O R
IC014, IC015
METER AMP
L/R MIX
IC012
OUTPUT SELECT & HEADPHONE AMP
IC011
NOISE REDUCTION
IC008
MIC
LINE
AD IN L,R
DA OUT L,R
DA-6 BOARD
PCM AUDIO PROCESS
(See Page 203)
(See Page 139)
SC-9 BOARD
J381
AUDIO OUT
AUDIO OUT MONO
VIDEO OUT
PB PCM
REC PCM RF
PB PCM RF
REC PCM RF
REC C RF
REC Y RF
PB VI RF
RV200
REC LEVEL
175)
OARD
FU-62 BOARD
VTR UNREG
CAM UNREG
MOTOR UNREG
BATTERY
(See Page 159)
CAMERA DC-DC CONVERTER
30V
15V
8.5V
CAM 5V
F 5V
EVF 5V
S/S 5V
CAM POWER ON
VI-46 BOARD
(See Page 140)
VY-12 BOARD
Y PROCESS
(See Page 193)
RETURN V
CAMERA IN
VIDEO IN
ACK C
AGC OUT Y
MIX Y
VC-10 BOARD
CHROMA PROCESS
ATF PILOT GENERATOR
(See Page 196)
COMB IN C
VD-10 BOAR
COMB FILTER
(See Page 201)
DR201
DC-DC CONVERTER
VIDEO 5V
AUDIO 5V
S/S 5V
IC201
EXPANSION PORT
VTR POWER ON
VIDEO IN
CAM. POWER
SI, SO BUS
VTR UNREG
MOTOR UNREG
MOTOR UNREG
SS-83 BOARD (See Page 149, 160)
DRUM MOTOR
DRUM FG, PG
CAPSTAN MOTOR
CAPSTAN FG
IC159 (1/2)
SHAPER
IC159 (1/2)
SHAPER
IC160
PROGRAMABLE DIVIDER
IC161
DRUM SERVO
CAPSTAN SERVO
DRUM FG
DRUM PG
REF V SV 3.58
DSP DA
DPH DA
DC DA
CPH DA
CSP DA
ATF ERROR
RF SWP
IC164 (1/2)
DRUM SPEED ERROR
IC163 (1/2) IC164 (1/2)
30Hz NOTCH FILTER & DRUM ERROR AMP
IC163 (1/2)
CAPSTAN ERROR AMP
CUE/REVIEW DRUM/CAPSTAN SPEED CORRECTION
CAPSTAN DC BIAS
DRUM ERROR
CAPSTAN ERROR
IC162
ATF SERVO
PB VI RF
ATF PILOT
ATF LOCK
REF V, SV3.58
SEL1, SEL2
SI, SO BUS
DR-45 BOAR
(See Page 152)
IC501
DRUM MOTOR DRIVE
IC502
CAPSTAN MOTOR DRIVE
TS-80 BOA
(See Page
IC151
MECHANISM CONTROL CPU
SFG2-CF98
TSA, TSB, SEL 16K/47K
CUE, REV, SP/LP
DRUM ON
CAP ON, CAP CW/CCW
(See Page 167)
RS-18 BOARD
IC302
LOADING MOTOR DRIVE
LOADING MOTOR
LOAD M CCW
LOAD M CW
IC301
CONTROL MOTOR DRIVE
CONTROL MOTOR
LOAD M CCW
LOAD M CW
LOAD SWITCH
CONTROL SWITCH
REC PROOF ME/MP
REEL SENSOR
MATRIX IN
ATF LOCK
TAPE END
TAPE TOP
DEW (M)
TAPE LED
BRAKE SOLENOID
SOLENOID DRIVE
IC154 (1/2)
DEW(M) DETECT
DEW SENSOR(M)
DEW SENSOR(S)
IC153
CONTROL L CPU
SERIAL CONT


FLYING ERASE
CHI
FE
FLYING ERASE OSC
REC ATF RF
REC C RF
REC Y RF
PB VI RF
VC-10 BOARD
CHROMA PROCESS
ATF PILOT GENERATOR
(See Page 196)
COMB IN C
VD-10 BOAR
COMB FILTER
(See Page 201)
ACK C
AGC OUT Y
MIX Y
DEO 5V
IDIO 5V
'S 5V
IC201
EXPANSION PORT
DRUM MOTOR
M
DRUM FG, PG
CAPSTAN MOTOR
CAPSTAN FG
SS-83 BOARD (See Page 149, 160)
IC159 (1/2)
SHAPER
IC159 (1/2)
SHAPER
IC160
PROGRAMABLE DIVIDER
DRUM FG
DRUM PG
REF V
SV 3.58
IC161
DRUM SERVO
CAPSTAN SERVO
RF SWP
DSP DA
DPH DA
DC DA
CPH DA
CSP DA
ATF ERROR
DRUM FG
IC164 (1/2)
DRUM SPEED ERROR
IC163 (1/2) IC164 (1/2)
30Hz NOTCH FILTER & DRUM ERROR AMP
DRUM ERROR
IC163 (1/2)
CAPSTAN ERROR AMP
CAPSTAN ERROR
CUE/REVIEW DRUM/CAPSTAN SPEED CORRECTION
CAPSTAN DC BIAS
IC162
ATF SERVO
PB VI RF
ATF PILOT
ATF LOCK
REF V, SV3.58
SEL1, SEL2
SI, SO BUS
DR-45 BOARD
(See Page 152)
IC501
DRUM MOTOR DRIVE
IC502
CAPSTAN MOTOR DRIVE
TAPE END SENSOR
TS-80 BOARD
(See Page 153)
TAPE TOP SENSOR
SK-12 BOARD
(See Page 167)
IC301
SERIAL CONT
DISPLAY & FUNCTION CONTROL
S301-308, 312-314
FUNCTION BUTTON
ND301
LCD
S309
HMS/REEL
REEL ↕ HMS
S310
EDIT SW
EDIT
S311
VTR SW
VTR POWER
(See Page 167)
RS-18 BOARD
IC302
LOADING MOTOR
LOADING MOTOR DRIVE
LOAD M CCW
LOAD M CW
IC301
CONTROL MOTOR
CONTROL MOTOR DRIVE
LOAD M CCW
LOAD M CW
LOAD SWITCH
CONTROL SWITCH
REC PROOF ME/MP
REEL SENSOR
MATRIX IN
TAPE LED
BRAKE SOLENOID
SOLENOID DRIVE
ATF LOCK
TAPE END
TAPE TOP
DEW (M)
IC154 (1/2)
DEW(M) DETECT
DEW SENSOR(M)
DEW SENSOR(S)
IC151
SFG2-CF98
TSA, TSB, SEL 16K/47K
CUE, REV, SP/LP
DRUM ON
CAP ON, CAP CW/CCW
MECHANISM CONTROL CPU
IC153
CONTROL L CPU
SERIAL CONT
IC157
EVER 5V
5V REG
IC152
WAKE UP
WAKE UP
IC155
DEW(S) DETECT
DEW-S
IC156
PEAK DETECT
CLOG
POWER ON
CAMERA POWER
CAM POWER ON
VTR POWER ON
EDIT SW
HMS/REEL
MODE CONTROL CPU
IC154 (1/2)
BATTERY END DETECT
RJ-3 BOARD (See Page 159)
CN951
REMOTE
OWER ON
SERIAL CONT
CAM. POWER
SI, SO BUS
VTR UNREG
MOTOR UNREG
MOTOR UNREG
VTR UNREG

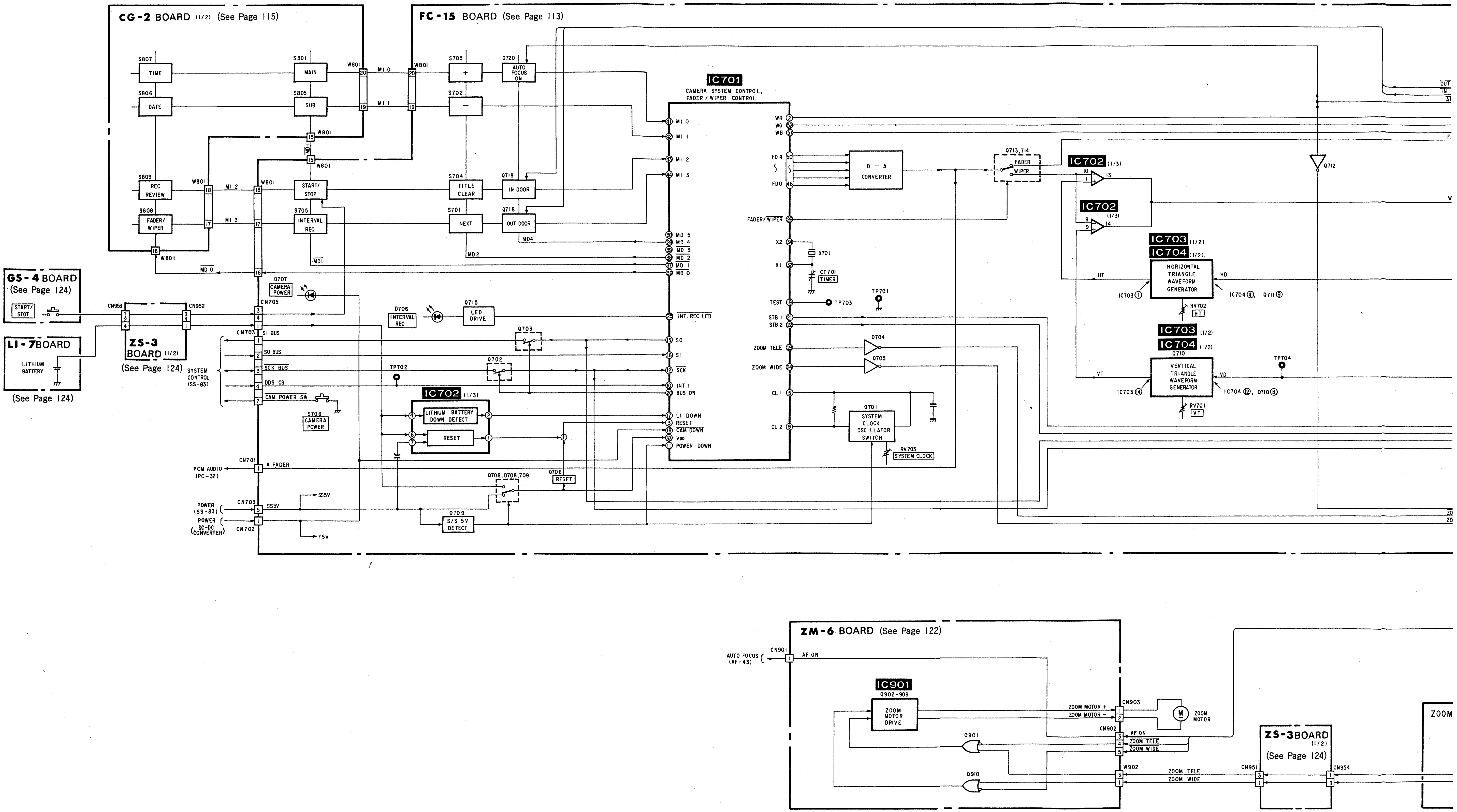
3-3. CAMERA BLOCK DIAGRAM (1)

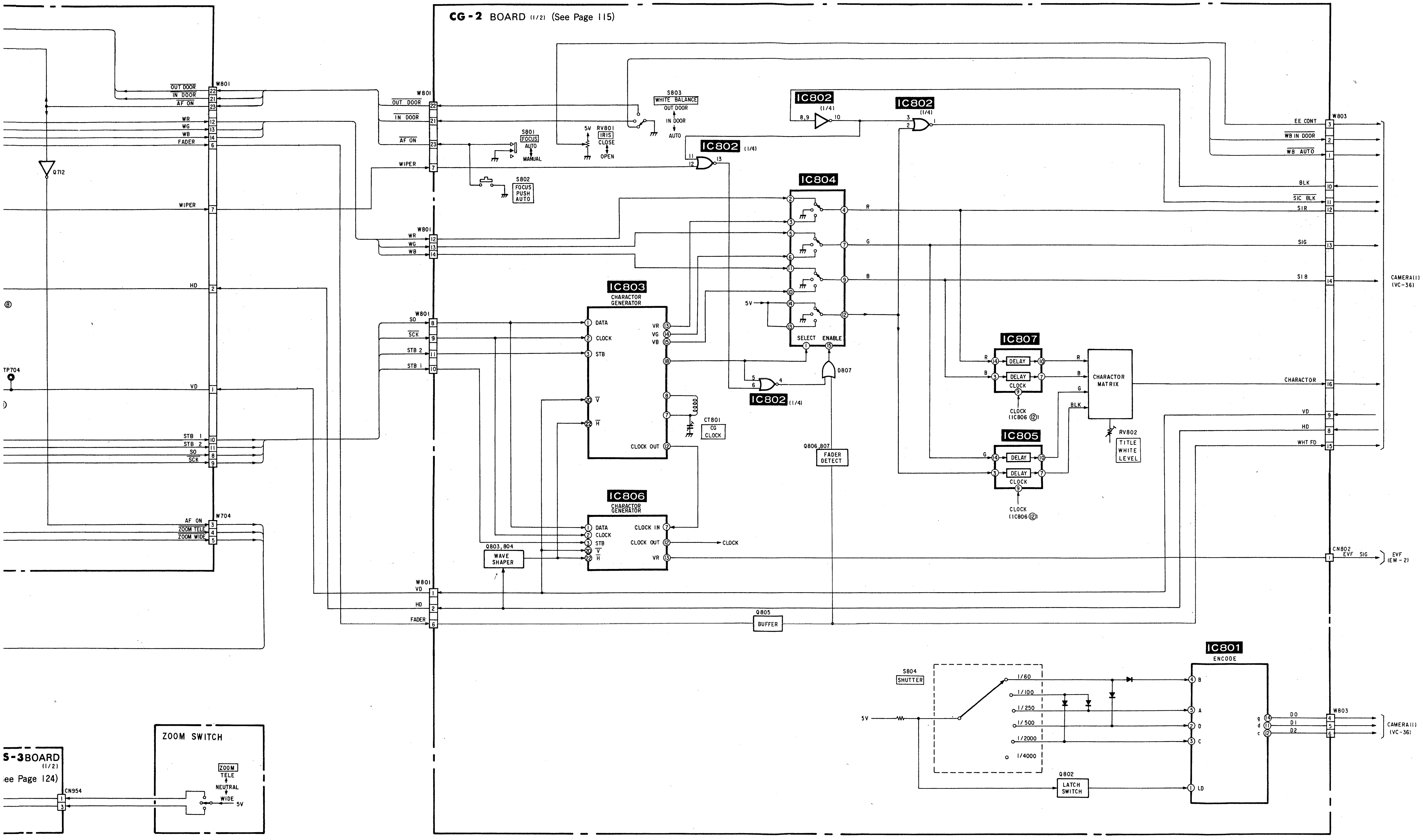

AW-10 BOARD (See Page 123)
IC503 (1/3) SENSOR SW
IC501 (1/2) DC1.6V BUFFER
IC504 AUTO WHITE BALANCE CONTROL
IC502 (1/2) INVERTER
IC501 (1/2) INTEGRATER
IC502 (1/2) INVERTER
RV501 AUTO WHITE BALANCE
IC503 (1/3) SENS SW
IC503 (1/3) DISCHARGE SW
Q502
Q501
Q506-508 D-A CONVERTER
Q503-505 D-A CONVERTER
TP502
TP501
X501
INITIAL RESET
WB INDR
WB AUTO
SW
WB DET
EX TIM
DARK
DIS CHG
RST
OSC 2
OSC 1
S8501 WHIT BALANCE SENSOR
CY
COM
YE
CYAN
YELLOW
DC 1.6V
DC 2.6V
5V
CN051
WB INDOOR
WB AUTO
VC-36 BOARD (See Page 105)
TP103
CAMERA (2) (CG-2)
WB AUTO
WB INDOOR
CN101
W103
IC101 ⑱
IC101 ⑲
IC101 CCD IMAGER
IC101 ⑯
Q104 ⑤
Q104 BUFFER
8Vp-p
7.8Vp-p
14.318MHz
8.4Vp-p
0.64Vp-p
32Vp-p
10Vp-p
IC101 ④
IC101 ③, ⑥
IC101 ①, ②
TP101
V SUB
V OUT
PG
H1
H2
V1
V2
V3
V4
VL
IC301
CLAMP
PEDESTAL
R-Y
B-Y
CARRIER BALANCE
RV301
Q307, 308 CHARACTER MIX
Q305, 306 LPF
Q301, 302 CHARACTER MIX
Q303, 304 LPF
Y MATRIX
Q101-103 V SUB REG
RV101 V SUB
30V (W104 ⑤)
Q105-108 V SUB DRIVE
CN103
SI R
SI G
SI B
BLK
TP102
IC102 SHUTTER CONTROL
ENABLE
X SUB
D0
D1
D2
FL1
XV4
XSG1
PS
VD
HD
Q110, D105, 106
IC105 (1/3) AUTO IRIS (Q138)
IC104 (1/4) BUFFER
IC104 (1/4)
IC104 (1/4)
IC103 AGC MEMORY IRIS MEMORY
WRT
INVERT
Q132
IC105 (1/3) INITIALIZE
Q136-139 AUTO/MANUAL DETECT
AUTO IRIS
Q133 BUFFER
Q143
MAIN
AUTO
EE CONT
EVF (EM-2) IRIS IND
W102
CN102
2.5V
IC104 (1/4)
IC105 (1/3) AUTO IRIS (Q138)
IRIS DET
D133
Q121 SWITCH
WINDOW
Q380, 381 IRIS DETECT
Q384 CLAMP
Q386, 387 AMP
Q382, 383 IRIS REFERENCE VOLTAGE
R CONT
B CONT
SIC BLK
CHARACTER
WHT FD
ZM-6 BOARD (See Page 122)
RV932 H OFST
IC931 (1/2) HALL AMP
TP932
RV931 H GAIN
HALL DEVICE
HALL(-)
HALL(+)
CN904
CN903
HALL OUT
IRIS REF
IC932 IRIS REFERENCE VOLTAGE
IC931 (1/2) IRIS DRIVE
TP931
IRIS MOTOR
DRIVE(+)
CONT(-)
CONT(+)
W201
W101
CCD OUT
B-Y OUT
R-Y OUT
R-Y IN
B-Y IN
CLP 2
AGC CONT R
AGC CONT F
IRIS
RV254 IRIS
VC-37 BOARD (See Page 107)
D003 VL GENERATOR
D007 -9V CLAMP
D006 -9V CLAMP
D005
D004
D008
IC003 V DRIVE
IC001 TIMING GENERATION
IC002 ROM
A0, A1, A2, A3-A6
D1-D4
XVCT
Q001
A6
A7
A5
A8
FLD
CK
X201, Q201, 202 28.63636MHz OSC
CT201 CLOCK VCO


VC-37 BOARD (See Page 107)
DT-62 BOARD (See Page 189)
CP-21 BOARD (See Page 191)
IC001 TIMING GENERATION
IC002 ROM
IC003 V DRIVE
IC004 H DRIVE
IC201 SYNC GENERATOR
IC251 SIGNAL SEPARATION AGC/IRIS CONTROL
IC001 PROCESS
IC352 ENCODER
VL GENERATOR
-9V CLAMP
-2V CLAMP
VOLTAGE SHIFT
PG DRIVE
SYNC GENERATOR
PHASE COMP
DIVIDER
CLAMP
S/H
PG CLP
AGC
AGC CLP
AGC CONT
LPF
BLK CLP
MIX
CS CONT
MIX CONT
MATRIX
WB → LB
MODULATOR
DET
CLP
BLANKING FADER SUPRESS
BURST GATE
MOD
1/28 ALT
GAIN CONTROL
WHITE CLIP
Y FADER
SYNC CHARACTER MIX
SHP CLP
DL341 0.18μsec DELAY
BUFFER
BLANKING
AGC DET
X201, Q201,202 28.63636MHz OSC
CT201 CLOCK VCO
RV252 AGC SET
RV253 MAX GAIN
RV255 AGC MIN GAIN ADJ
RV254 IRIS
RV347 BURST LEVEL
RV341 AP LEVEL
RV342 Y LEVEL
RV343 WHITE CLIP
RV344 SET UP
RV002 MATRIX GAIN 2
RV001 MATRIX GAIN 1
RV004 B GAIN
RV003 R GAIN
IC251 ⑮
IC251 ⑯ 14.318MHz
IC251 ⑫
IC251 ⑰
IC251 ⑱,⑳,㉑ 4.76MHz
IC251 ㉙
IC251 ㉗
IC251 ㉜
IC251 ㊲
IC251 ㊳
IC251 ㊱
IC251 ㊵
IC201 ⑪ 14.318MHz
IC201 ③
IC201 ④
IC201 ⑤
IC352 ㊵
TP251
TP252
TP341
TP342
C OUT
VIDEO OUT
EVF OUT
FADER

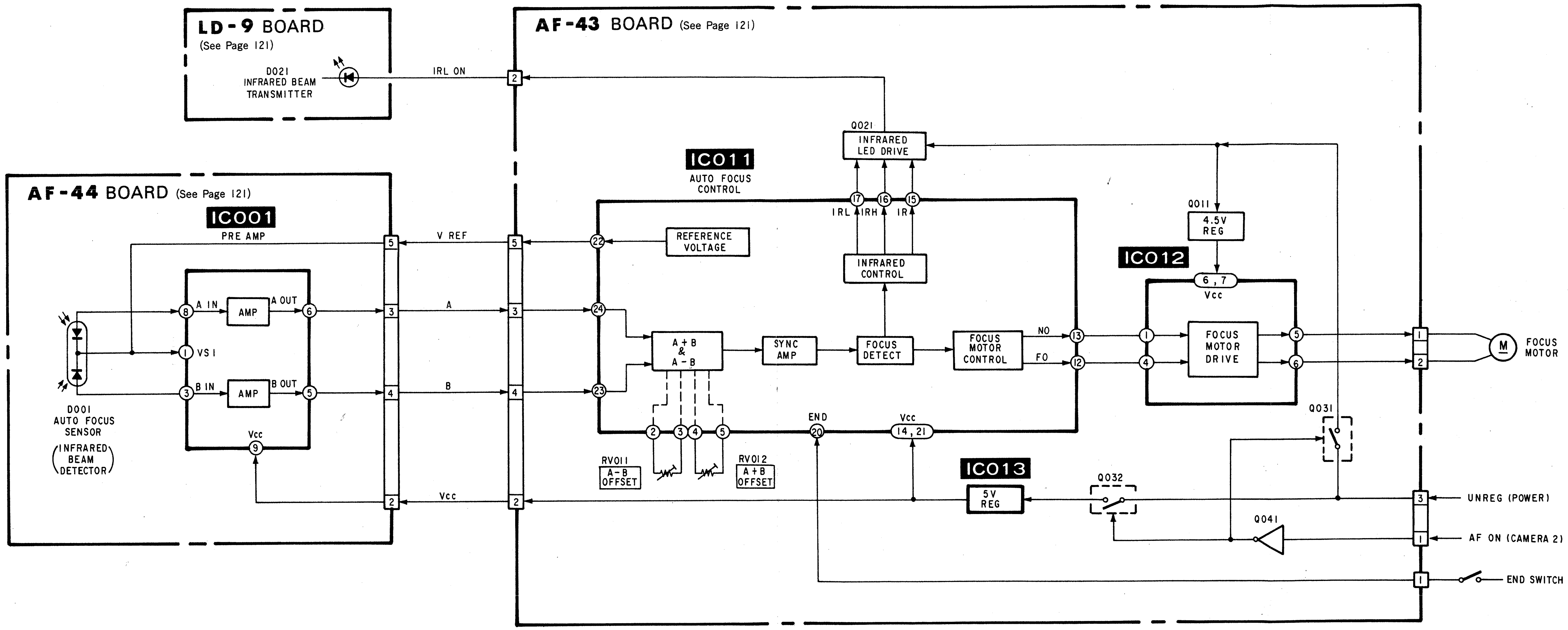

CP-21 BOARD (See Page 191)
IC001
PROCESS
IC251
SIGNAL SEPARATION AGC/IRIS CONTROL
IC352
ENCODER
CC-13 BOARD (See Page 139)
IC901
VIDEO OUT AMP
IC251 ⑫
IC251 ⑰
IC251 ⑱,⑳,㉑
IC251 ㉙
IC251 ㉗
IC251 ㊲
IC251 ㉜
IC251 ㊳
IC251 ㊱
IC251 ㊵
4.3Vp-p
4.5Vp-p
4.76MHz
4Vp-p
0.26Vp-p
0.44Vp-p
5Vp-p
0.5Vp-p
0.4Vp-p
0.56Vp-p
0.8Vp-p
2.5Vp-p
1.2Vp-p
14.318MHz
IC201 ⑪
IC201 ③
IC201 ④
IC201 ⑤
SHP
CLP3
SHO
SH3
SH2
SH1
SP3
SP2
SP1
CLP1
S/H
PG CLP
AGC
AGC CLP
AGC CONT
LPF
BLK CLP
MIX
CS CONT
MIX CONT
YL OUT
G OUT
CY OUT
CS OUT
CS SLICE
CS GAIN
DET OUT
IRIS OUT
TP252
AGC CONT INVERT
AGC CONT AMP
WINDOW
DET LEVEL
IRIS LEVEL
RV252 AGC SET
RV253 MAX GAIN
RV255 AGC MIN GAIN ADJ
AGC CONT F
AGC CONT R
Q258,259
AGC DET
SIC BLK (W101 ㉕)
Q260,261
BLANKING
Q263
LPF
YL
G
CY
RV004 B GAIN
RV003 R GAIN
RV002 MATRIX GAIN 2
RV001 MATRIX GAIN 1
B CONT
R CONT
C LEVEL
WHD+VD
C PED
R COMP
B COMP
RV005 C PED
G OUT
RV007 B-Y HUE
RV006 R-Y HUE
R-Y HUE
B-Y HUE
MATRIX
GATE DET
CLP
PED
YL MATRIX 1
YL MATRIX 2
WB ↔ LB
LB
GATE
γ
R-G
B-G
R-Y
B-Y
R-Y OUT
B-Y OUT
RV009 R-Y GAIN
RV008 B-Y GAIN
CP-21 BOARD ⑧
CP-21 BOARD ⑨
CP-21 BOARD ⑪
C-γ CONT
OFFSET OUT
TP253
YL MIX
YL-YH OUT
YH OUT
FL001
LPF
YH OUT
Y-γ CONT
YL MIX
GATE 1
GATE 2
GATE 3
SH2
SH3
SH1
CLP I
R-Y IN
B-Y IN
TP341
TP342
SC
MODULATOR
DET
BLANKING FADER SUPRESS
C OUT
Q342
CHROMA BUFFER
3.58MHz BPF
Q351,352
BUFFER
Q353
BLANKING
SIC BLK (W101 ㉕)
CS-Y
CS AGC
RV347 BURST LEVEL
LALT
1/28 ALT
4 FSC
1/2
MUE
BF
YL-YH
YH
MOD
BURST GATE
FADER
C IN
RV345 SYNC LEVEL
VIDEO OUT
Q348
Y BUFFER
EVF OUT
SHP CLP
GAIN CONTROL
WHITE CLIP
Y FADER
Y BLK
SYNC CHARACTER MIX
DL341
0.18μsec DELAY
RV341 AP LEVEL
D251
AGC CONT
RV342 Y LEVEL
RV343 WHITE CLIP
RV344 SET UP
BLK
CLP
SYNC
CHARACTER
WHT WD
IC352 ㊵
IC352 ⑳
IC352 ⑯
Q349
Y/C MIX
Q350
VIDEO BUFFER
TP345
TP343
CN201
VIDEO IN
CN906
VIDEO (VI-46) CAM OUT
W901
Q906
BUFFER
Q901-905
ACCESSORY
CC CONT
CAMERA
CAM 5V
Q907,910
5V SWITCH
Vcc
J901
IN
OUT
ACCESSORY
H

3-4. CAMERA BLOCK DIAGRAM (2)

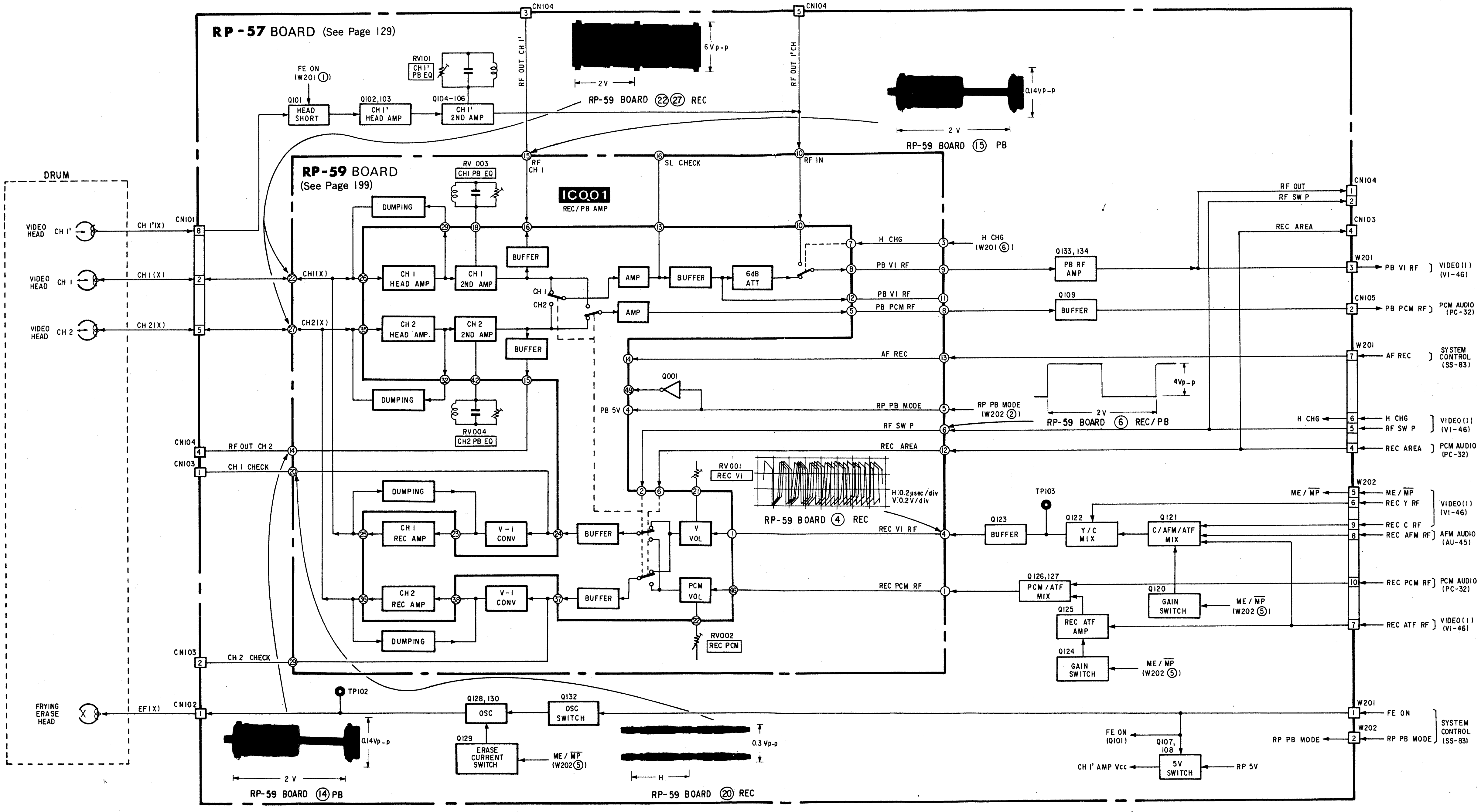

CG-2 BOARD (1/2) (See Page 115)
FC-15 BOARD (See Page 113)
S807
TIME
S806
DATE
S801
MAIN
S805
SUB
S809
REC REVIEW
S808
FADER/WIPER
START/STOP
S705
INTERVAL REC
W801
MI 0
MI 1
MI 2
MI 3
MD 0
MD 1
MD 2
MD4
S703
+
S702
−
S704
TITLE CLEAR
S701
NEXT
Q720
AUTO FOCUS ON
Q719
IN DOOR
Q718
OUT DOOR
IC701
CAMERA SYSTEM CONTROL, FADER / WIPER CONTROL
MD 5
MD 4
MD 3
MD 2
MD 1
MD 0
INT. REC LED
SO
SI
SCK
INT 1
BUS ON
LI DOWN
RESET
CAM DOWN
VDD
POWER DOWN
WR
WG
WB
FD 4
FD0
FADER/WIPER
X2
X1
X701
CT701
TIMER
TEST
TP703
TP701
STB 1
STB 2
ZOOM TELE
ZOOM WIDE
CL 1
CL 2
D − A CONVERTER
Q713, 714
FADER
WIPER
IC702 (1/3)
IC702 (1/3)
Q712
IC703 (1/2)
IC704 (1/2)
HORIZONTAL TRIANGLE WAVEFORM GENERATOR
HT
HD
IC703①
IC704④, Q711⑧
RV702
HT
IC703 (1/2)
IC704 (1/2)
Q710
VERTICAL TRIANGLE WAVEFORM GENERATOR
VT
VD
IC703⑭
IC704⑫, Q710⑧
RV701
VT
TP704
Q704
Q705
Q701
SYSTEM CLOCK OSCILLATOR SWITCH
RV703
SYSTEM CLOCK
GS-4 BOARD (See Page 124)
START/STOP
LI-7 BOARD
LITHIUM BATTERY
(See Page 124)
CN953
CN952
ZS-3 BOARD (1/2)
(See Page 124)
D707
CAMERA POWER
CN705
D706
INTERVAL REC
Q715
LED DRIVE
CN703
SI BUS
SO BUS
SCK BUS
DDS CS
CAM POWER SW
SYSTEM CONTROL (SS-83)
S706
CAMERA POWER
TP702
Q703
Q702
IC702 (1/3)
LITHIUM BATTERY DOWN DETECT
RESET
CN701
A FADER
PCM AUDIO (PC-32)
Q708, D708, 709
Q706
RESET
CN703
SS5V
POWER (SS-83)
POWER (DC-DC CONVERTER)
CN702
SS5V
F5V
Q709
S/S 5V DETECT
ZM-6 BOARD (See Page 122)
AUTO FOCUS (AF-43)
CN901
AF ON
IC901
Q902-909
ZOOM MOTOR DRIVE
ZOOM MOTOR +
ZOOM MOTOR −
CN903
M
ZOOM MOTOR
CN902
AF ON
ZOOM TELE
ZOOM WIDE
Q901
Q910
W902
ZOOM TELE
ZOOM WIDE
CN951
ZS-3 BOARD (1/2)
(See Page 124)
CN954
ZOOM


CG-2 BOARD (1/2) (See Page 115)
W801
OUT DOOR
IN DOOR
AF ON
WR
WG
WB
FADER
WIPER
HD
VD
STB 1
STB 2
SO
SCK
Q712
TP704
W704
ZOOM TELE
ZOOM WIDE
S801 FOCUS AUTO MANUAL
S802 FOCUS PUSH AUTO
5V RV801 IRIS CLOSE OPEN
S803 WHITE BALANCE OUT DOOR IN DOOR AUTO
IC802 (1/4)
IC803 CHARACTOR GENERATOR
DATA
CLOCK
STB
VR
VG
VB
CLOCK OUT
CT801 CG CLOCK
IC804
SELECT
ENABLE
D807
Q806,807 FADER DETECT
IC806 CHARACTOR GENERATOR
CLOCK IN
Q803,804 WAVE SHAPER
Q805 BUFFER
IC807
IC805
DELAY
CLOCK (IC806 ⑫)
CHARACTOR MATRIX
RV802 TITLE WHITE LEVEL
W803
EE CONT
WB IN DOOR
WB AUTO
BLK
SIC BLK
SIR
SIG
SIB
CHARACTOR
WHT FD
CAMERA(1) (VC-36)
CN802 EVF SIG
EVF (EM-2)
S804 SHUTTER
1/60
1/100
1/250
1/500
1/2000
1/4000
Q802 LATCH SWITCH
IC801 ENCODE
D0
D1
D2
ZOOM SWITCH
ZOOM TELE NEUTRAL WIDE
5V
S-3 BOARD (1/2) (See Page 124)
CN954

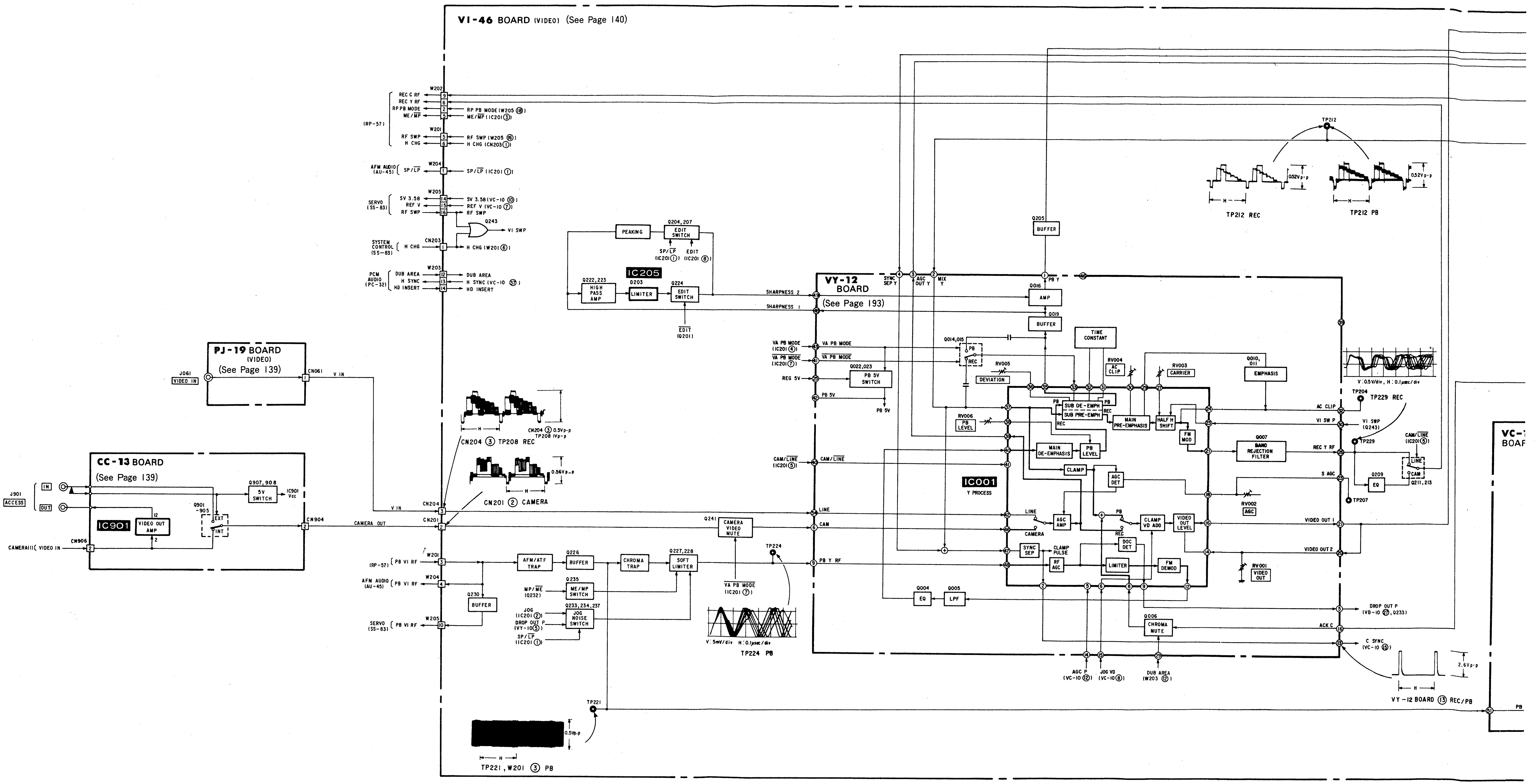
3-5. AUTO FOCUS BLOCK DIAGRAM

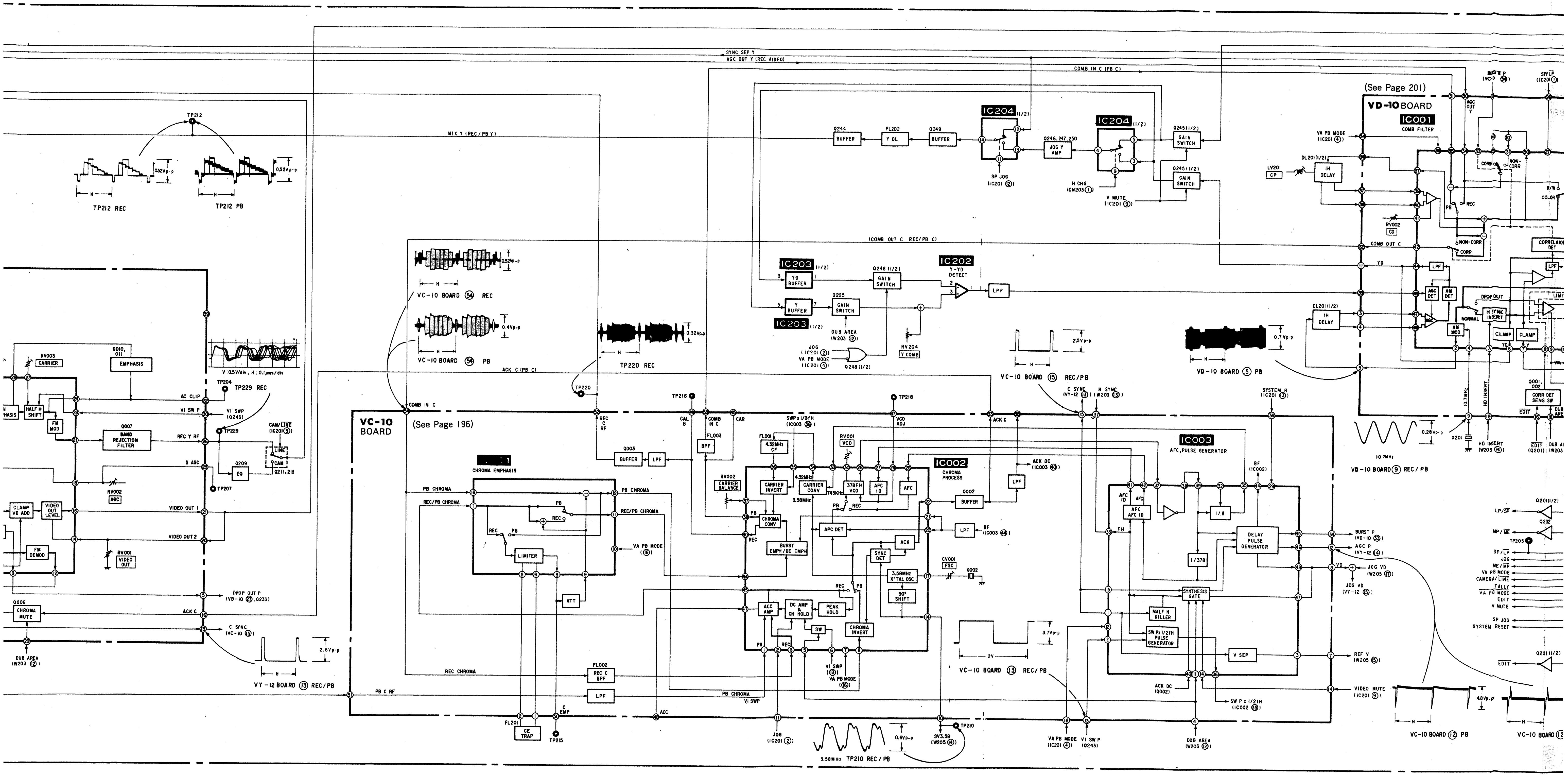

LD-9 BOARD
(See Page 121)
D021
INFRARED BEAM
TRANSMITTER
IRL ON
AF-43 BOARD (See Page 121)
Q021
INFRARED
LED DRIVE
IC011
AUTO FOCUS
CONTROL
IRL
IRH
IR
17
16
15
Q011
4.5V
REG
AF-44 BOARD (See Page 121)
IC001
PRE AMP
V REF
5
22
REFERENCE
VOLTAGE
INFRARED
CONTROL
IC012
6, 7
Vcc
A IN
A OUT
AMP
8
6
3
A
24
VS I
1
A+B
&
A-B
SYNC
AMP
FOCUS
DETECT
FOCUS
MOTOR
CONTROL
NO
FO
13
12
1
4
FOCUS
MOTOR
DRIVE
5
6
M
FOCUS
MOTOR
B IN
B OUT
AMP
3
5
4
B
23
D001
AUTO FOCUS
SENSOR
(INFRARED
BEAM
DETECTOR)
Vcc
9
2
3
4
5
END
20
Vcc
14, 21
Q031
RV011
A-B
OFFSET
RV012
A+B
OFFSET
IC013
Q032
Vcc
2
5V
REG
UNREG (POWER)
Q041
AF ON (CAMERA 2)
END SWITCH

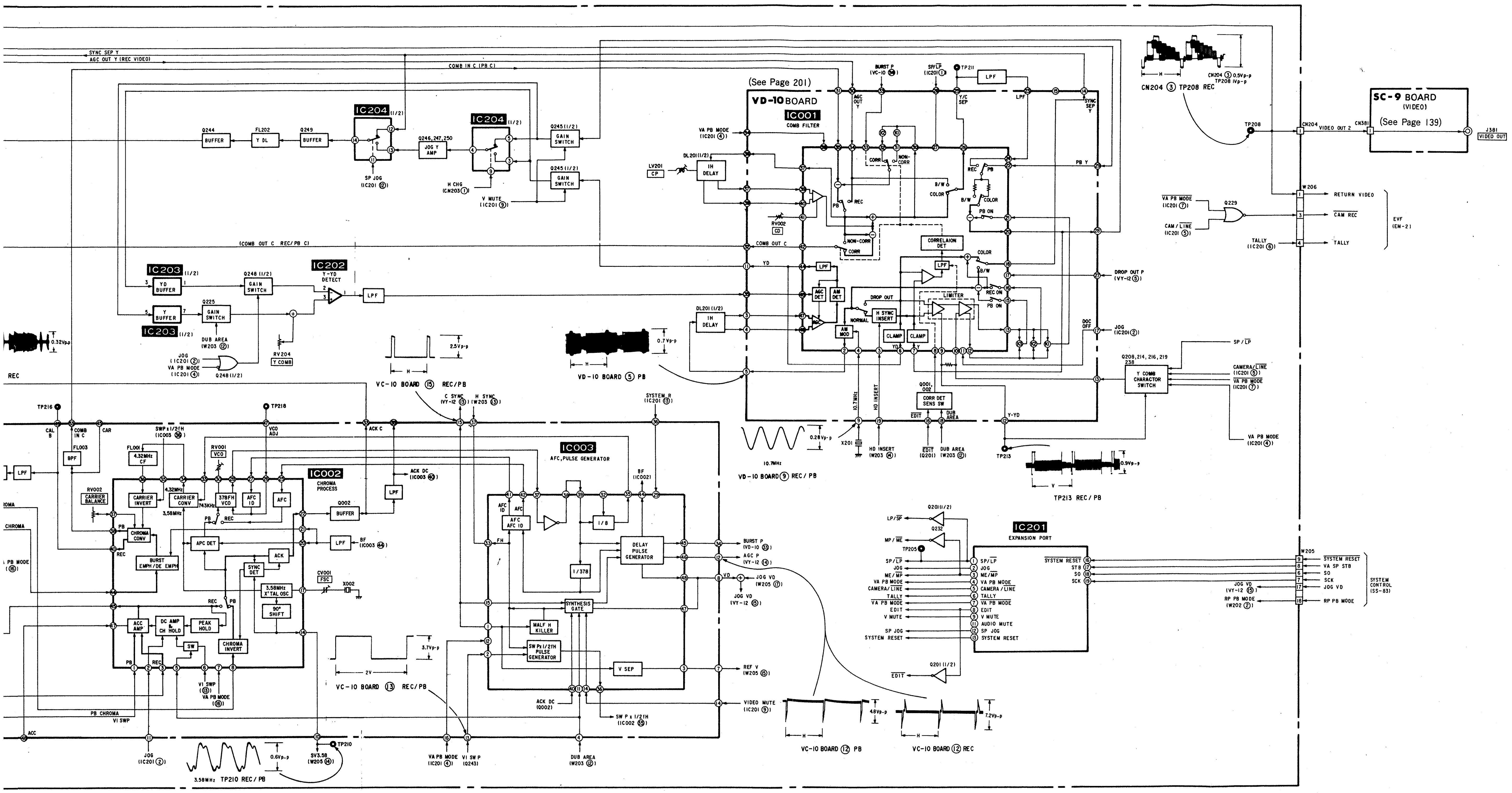
3-6. VIDEO BLOCK DIAGRAM (1)


DRUM
VIDEO HEAD CH 1'
VIDEO HEAD CH 1
VIDEO HEAD CH 2
FRYING ERASE HEAD
CH 1'(X)
CH 1(X)
CH 2(X)
EF(X)
CN101
CN104
CN103
CN102
RP-57 BOARD (See Page 129)
FE ON (W201 ①)
Q101 HEAD SHORT
Q102,103 CH 1' HEAD AMP
Q104-106 CH 1' 2ND AMP
RV101 CH 1' PB EQ
RF OUT CH 1'
RF OUT 1'CH
6Vp-p
2V
RP-59 BOARD ㉒㉗ REC
0.14Vp-p
RP-59 BOARD ⑮ PB
RP-59 BOARD (See Page 199)
RV 003 CH1 PB EQ
RF CH 1
SL CHECK
RF IN
IC001 REC/PB AMP
DUMPING
CH1(X)
CH2(X)
CH 1 HEAD AMP
CH 1 2ND AMP
CH 2 HEAD AMP.
CH 2 2ND AMP
BUFFER
CH 1
CH2
AMP
6dB ATT
H CHG
PB V1 RF
PB PCM RF
AF REC
Q001
PB 5V
RP PB MODE
RF SW P
REC AREA
RV004 CH2 PB EQ
RF OUT CH 2
CH 1 CHECK
CH 2 CHECK
CH 1 REC AMP
CH 2 REC AMP
V-I CONV
V VOL
PCM VOL
RV001 REC V1
RV002 REC PCM
H:0.2μsec/div
V:0.2V/div
RP-59 BOARD ④ REC
REC V1 RF
REC PCM RF
H CHG (W201 ⑥)
RP PB MODE (W202 ②)
4Vp-p
RP-59 BOARD ⑥ REC/PB
Q133,134 PB RF AMP
Q109 BUFFER
TP103
Q123 BUFFER
Q122 Y/C MIX
Q121 C/AFM/ATF MIX
Q126,127 PCM/ATF MIX
Q120 GAIN SWITCH
Q125 REC ATF AMP
Q124 GAIN SWITCH
ME/MP (W202 ⑤)
TP102
Q128,130 OSC
Q132 OSC SWITCH
Q129 ERASE CURRENT SWITCH
0.3Vp-p
H
RP-59 BOARD ⑭ PB
RP-59 BOARD ⑳ REC
FE ON (Q101)
Q107,108 5V SWITCH
CH 1' AMP Vcc
RP 5V
RF OUT
RF SW P
W201
W202
CN105
PB V1 RF
VIDEO(1) (V1-46)
PB PCM RF
PCM AUDIO (PC-32)
SYSTEM CONTROL (SS-83)
ME/MP
REC Y RF
REC C RF
REC AFM RF
AFM AUDIO (AU-45)
REC PCM RF
REC ATF RF
FE ON

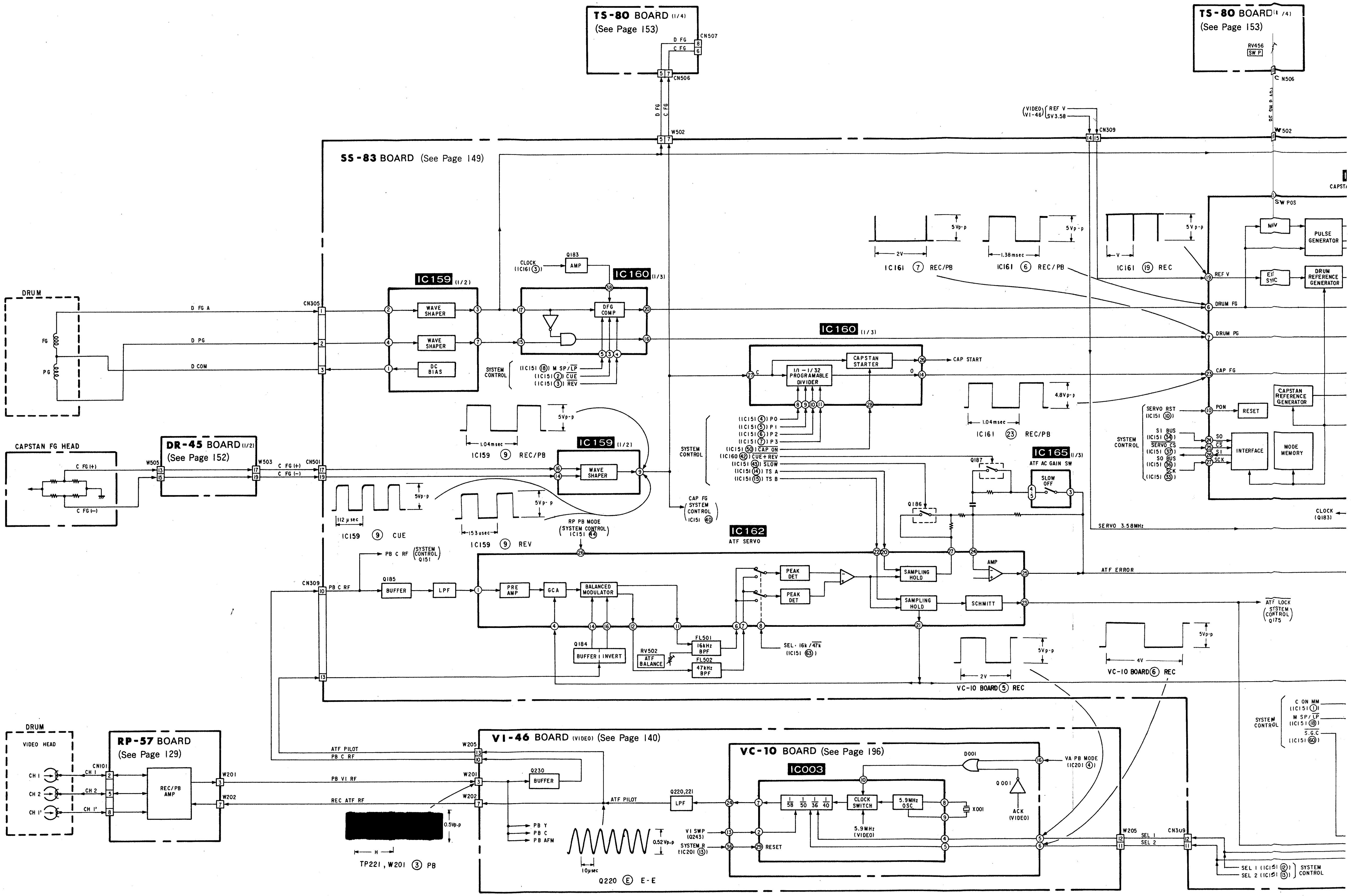
3-7. VIDEO BLOCK DIAGRAM (2)

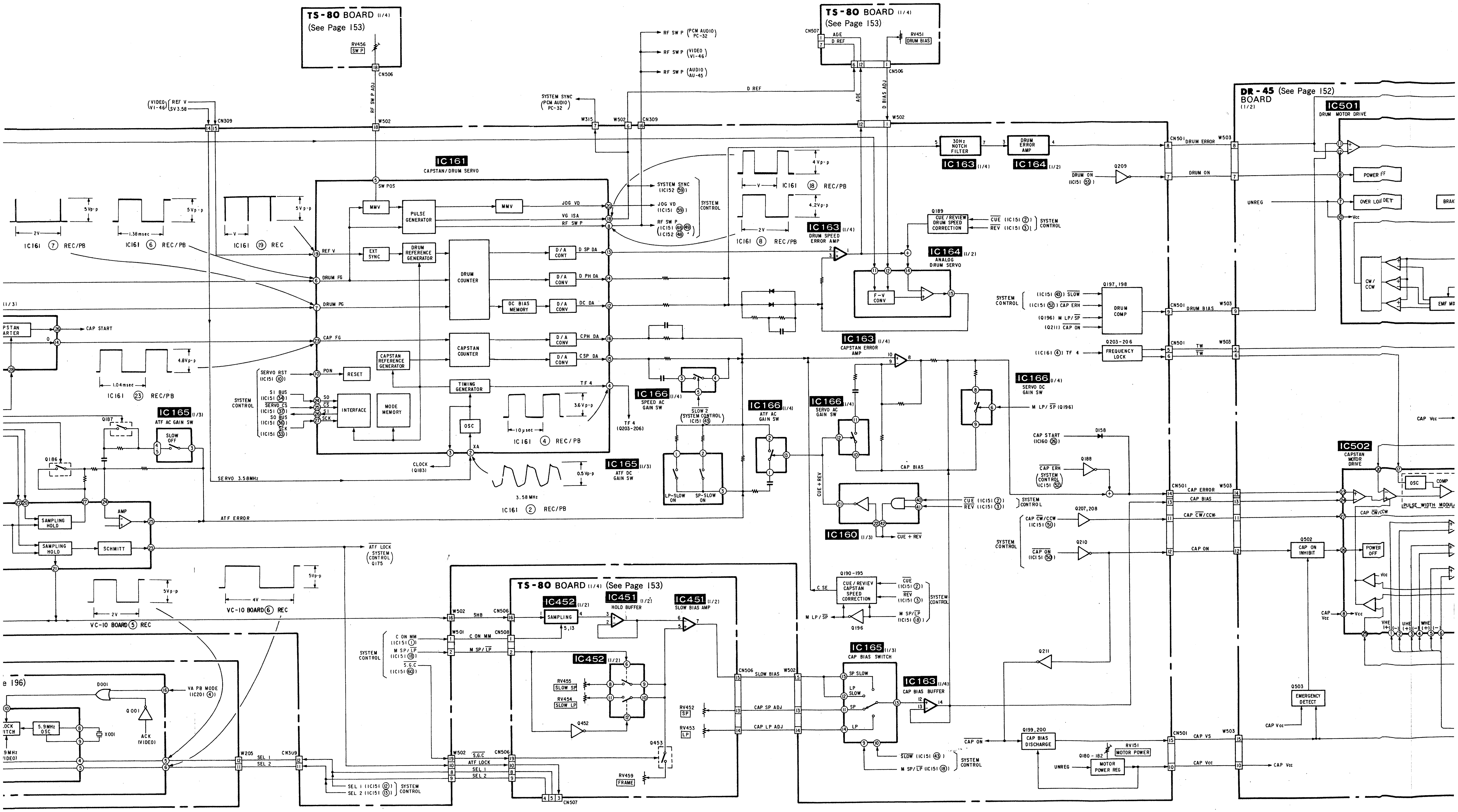

VI-46 BOARD (VIDEO) (See Page 140)
PJ-19 BOARD (VIDEO) (See Page 139)
J061 VIDEO IN
CN061
V IN
CC-13 BOARD (See Page 139)
J901 ACCESS
IN
OUT
IC901
VIDEO OUT AMP
Q907,908 5V SWITCH
IC901 Vcc
Q901-905
EXT
INT
CN904
CN906
CAMERA(1)(VIDEO IN
CAMERA OUT
CN204
CN201
W202
REC C RF
REC Y RF
RP PB MODE
ME/MP
(RP-57)
RP PB MODE (W205 ⑱)
ME/MP (IC201 ③)
W201
RF SWP
H CHG
RF SWP (W205 ⑯)
H CHG (CN203 ①)
AFM AUDIO (AU-45)
W204
SP/LP
SP/LP (IC201 ①)
W205
SERVO (SS-83)
SV 3.58
REF V
RF SWP
SV 3.58 (VC-10 ⑩)
REF V (VC-10 ⑦)
Q243
VI SWP
SYSTEM CONTROL (SS-83)
CN203
H CHG (W201 ⑥)
W203
PCM AUDIO (PC-32)
DUB AREA
H SYNC
HD INSERT
H SYNC (VC-10 ㊲)
PEAKING
Q204,207 EDIT SWITCH
SP/LP (IC201 ①)
EDIT (IC201 ⑧)
IC205
Q222,223 HIGH PASS AMP
D203 LIMITER
Q224 EDIT SWITCH
EDIT (Q201)
SHARPNESS 2
SHARPNESS 1
CN204 ③ 0.5Vp-p
TP208 1Vp-p
CN204 ③ TP208 REC
0.56Vp-p
CN201 ② CAMERA
H
W201
(RP-57) PB VI RF
AFM AUDIO (AU-45) PB VI RF
SERVO (SS-83) PB VI RF
AFM/ATF TRAP
Q226 BUFFER
CHROMA TRAP
Q227,228 SOFT LIMITER
Q230 BUFFER
MP/ME (Q232)
Q235 ME/MP SWITCH
JOG (IC201 ②)
DROP OUT P (VY-10 ⑤)
SP/LP (IC201 ①)
Q233,234,237 JOG NOISE SWITCH
Q241 CAMERA VIDEO MUTE
VA PB MODE (IC201 ⑦)
TP224
V: 5mV/div H: 0.1μsec/div
TP224 PB
TP221
0.5Vp-p
TP221, W201 ③ PB
VY-12 BOARD (See Page 193)
SYNC SEP Y
AGC OUT Y
MIX Y
PB Y
Q205 BUFFER
Q016 AMP
Q019 BUFFER
VA PB MODE (IC201 ④)
VA PB MODE (IC201 ⑦)
REG 5V
PB 5V
Q022,023 PB 5V SWITCH
Q014,015
PB
REC
RV005
DEVIATION
TIME CONSTANT
RV004 AC CLIP
RV003 CARRIER
Q010,011 EMPHASIS
RV006 PB LEVEL
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
MAIN DE-EMPHASIS
PB LEVEL
CLAMP
AGC DET
CAM/LINE (IC201 ⑤)
IC001 Y PROCESS
LINE
CAM
PB Y RF
CAMERA
AGC AMP
CLAMP VD ADD
VIDEO OUT LEVEL
SYNC SEP
CLAMP PULSE
RF AGC
DOC DET
LIMITER
FM DEMOD
Q004 EQ
Q005 LPF
Q006 CHROMA MUTE
AGC P (VC-10 ⑫)
JOG VD (VC-10 ⑧)
DUB AREA (W203 ⑫)
TP212
0.52Vp-p
TP212 REC
TP212 PB
V: 0.5V/div, H: 0.1μsec/div
TP204
TP229 REC
AC CLIP
VI SW P
VI SWP (Q243)
TP229
Q007 BAND REJECTION FILTER
REC Y RF
S AGC
RV002 AGC
TP207
Q209 EQ
CAM/LINE (IC201 ⑤)
LINE
CAM
Q211,213
VIDEO OUT 1
VIDEO OUT 2
RV001 VIDEO OUT
DROP OUT P (VB-10 ㉗, Q233)
ACK C
C SYNC (VC-10 ⑮)
2.6Vp-p
VY-12 BOARD ⑬ REC/PB
PB
VC-
BOAR

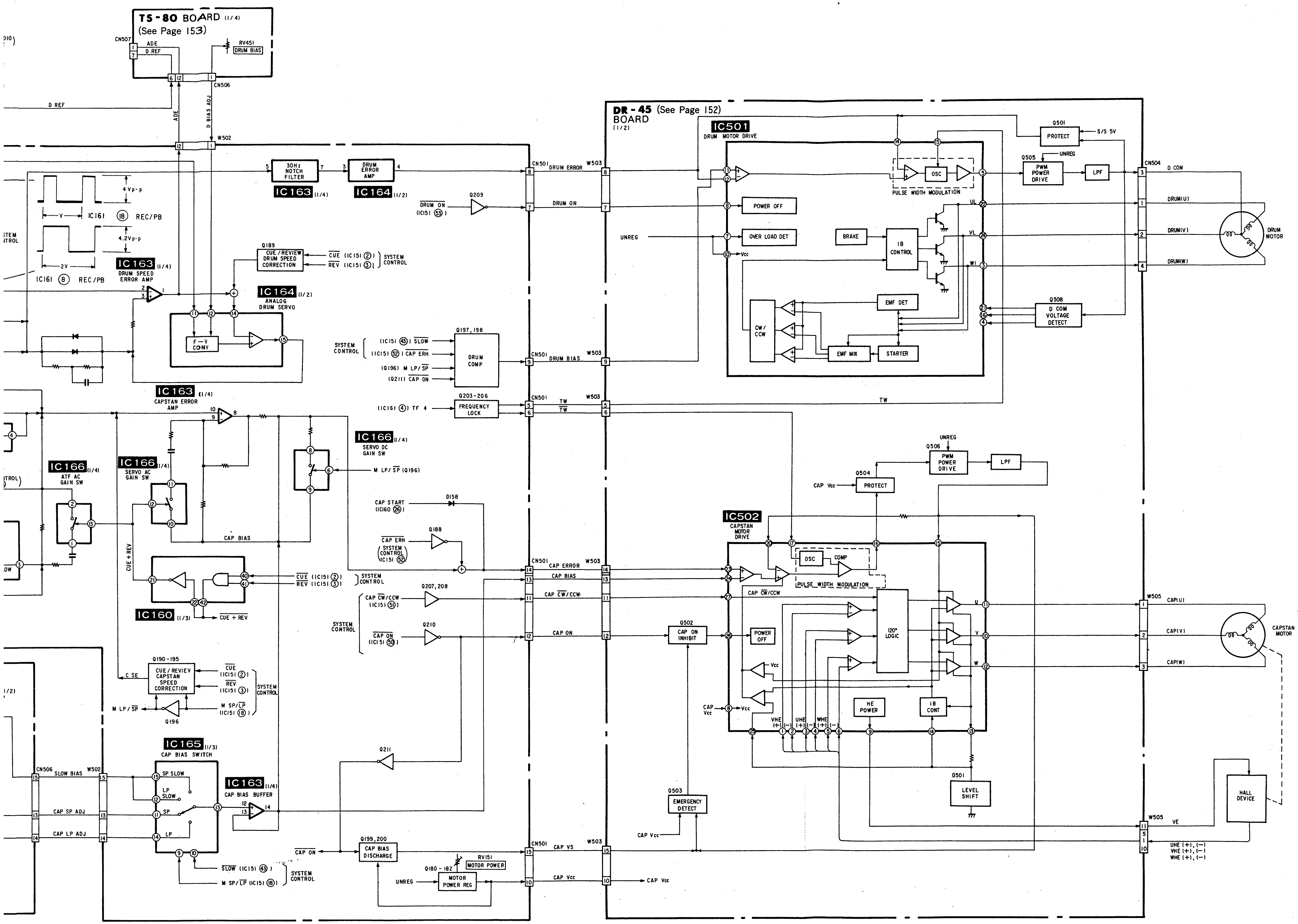

SYNC SEP Y
AGC OUT Y (REC VIDEO)
COMB IN C (PB C)
MIX Y (REC / PB Y)
TP212
0.52Vp-p
TP212 REC
TP212 PB
(See Page 201)
VD-10 BOARD
IC001
COMB FILTER
IC204
Q244 BUFFER
FL202 Y DL
Q249 BUFFER
Q246,247,250 JOG Y AMP
Q245 (1/2) GAIN SWITCH
SP JOG (IC201 ⑫)
H CHG (CN203 ①)
V MUTE (IC201 ⑨)
VA PB MODE (IC201 ④)
DL201 (1/2) 1H DELAY
LV201 CP
RV002 CD
COMB OUT C
(COMB OUT C REC/PB C)
IC203
YD BUFFER
Y BUFFER
Q248 (1/2) GAIN SWITCH
Q225 GAIN SWITCH
IC202
Y-YD DETECT
LPF
DUB AREA (W203 ⑫)
JOG (IC201 ②)
VA PB MODE (IC201 ④)
RV204 Y COMB
VC-10 BOARD ㊹ REC
VC-10 BOARD ㊹ PB
0.4Vp-p
0.32Vp-p
TP220 REC
2.5Vp-p
VC-10 BOARD ⑮ REC/PB
0.7Vp-p
VD-10 BOARD ⑤ PB
CORR
NON-CORR
B/W
COLOR
CORRELATION DET
AGC DET
AM DET
AM MOD
DROP OUT
NORMAL
H SYNC INSERT
CLAMP
Q001,002 CORR DET SENS SW
10.7MHz
HD INSERT
X201
0.28Vp-p
VD-10 BOARD ⑨ REC/PB
RV003 CARRIER
Q010,011 EMPHASIS
HALF H SHIFT
FM MOD
Q007 BAND REJECTION FILTER
RV002 AGC
CLAMP VD ADD
VIDEO OUT LEVEL
FM DEMOD
RV001 VIDEO OUT
Q006 CHROMA MUTE
DUB AREA (W203 ⑫)
V:0.5V/div, H:0.1μsec/div
TP204
TP229 REC
AC CLIP
VI SW P
VI SWP (Q243)
TP229
REC Y RF
S AGC
Q209 EQ
CAM/LINE (IC201 ⑤)
LINE
CAM
Q211,213
TP207
VIDEO OUT 1
VIDEO OUT 2
DROP OUT P (VD-10 ㉗, Q233)
ACK C
C SYNC (VC-10 ⑮)
2.6Vp-p
VY-12 BOARD ⑬ REC/PB
VC-10 BOARD
(See Page 196)
COMB IN C
ACK C (PB C)
TP220
REC C RF
Q003 BUFFER
CHROMA EMPHASIS
PB CHROMA
REC/PB CHROMA
LIMITER
ATT
VA PB MODE (⑯)
REC CHROMA
FL002 REC C BPF
PB C RF
LPF
FL201 CE TRAP
C EMP
TP215
ACC
TP216
CAL B
COMB IN C
FL003 BPF
CAR
FL001 4.32MHz CF
SWP x 1/2 1H (IC003 ㊿)
RV002 CARRIER BALANCE
CARRIER INVERT
CARRIER CONV
4.32MHz
3.58MHz
743KHz
RV001 VCO
378FH VCO
AFC ID
AFC
IC002
CHROMA PROCESS
CHROMA CONV
APC DET
BURST EMPH/DE EMPH
ACK
SYNC DET
3.58MHz X'TAL OSC
90° SHIFT
ACC AMP
DC AMP & CH HOLD
PEAK HOLD
SW
CHROMA INVERT
VI SWP (⑬)
VA PB MODE (⑯)
PB CHROMA
VI SWP
JOG (IC201 ②)
TP218
VCO ADJ
Q002 BUFFER
BF (IC003 ㊹)
CV001 FSC
X002
3.58MHz TP210 REC / PB
0.6Vp-p
SV3.58 (W205 ⑭)
TP210
3.7Vp-p
2V
VC-10 BOARD ⑬ REC/PB
ACK C
ACK DC (IC003 ㊸)
C SYNC (VY-12 ⑬)
H SYNC (W203 ⑬)
SYSTEM R (IC201 ⑮)
IC003
AFC, PULSE GENERATOR
BF (IC002)
AFC ID
AFC ID
1/8
1/378
DELAY PULSE GENERATOR
SYNTHESIS GATE
HALF H KILLER
SW P x 1/2 1H PULSE GENERATOR
V SEP
ACK DC (Q002)
SW P x 1/2 1H (IC002 ㉝)
VA PB MODE (IC201 ④)
VI SW P (Q243)
DUB AREA (W203 ⑫)
BURST P (VD-10 ㉝)
AGC P (VY-12 ④)
JOG VD (W205 ⑰)
JOG VD (VY-12 ⑤)
REF V (W205 ⑤)
VIDEO MUTE (IC201 ③)
4.8Vp-p
VC-10 BOARD ⑫ PB
VC-10 BOARD
10.7MHz
Q201 (1/2)
LP/SP
Q232
MP/ME
TP205
SP/LP
JOG
ME/MP
VA PB MODE
CAMERA/LINE
TALLY
VA PB MODE
EDIT
V MUTE
SP JOG
SYSTEM RESET
Q201 (1/2)
EDIT
EDIT (Q201)
DUB AR (W203)
HD INSERT (W203 ⑭)
SP/LP (IC201 ①)


SYNC SEP Y
AGC OUT Y (REC VIDEO)
COMB IN C (PB C)
IC204 (1/2)
IC204 (1/2)
Q244 BUFFER
FL202 Y DL
Q249 BUFFER
Q246,247,250 JOG Y AMP
Q245 (1/2) GAIN SWITCH
Q245 (1/2) GAIN SWITCH
SP JOG (IC201 ⑫)
H CHG (CN203 ①)
V MUTE (IC201 ⑨)
(COMB OUT C REC/PB C)
IC203 (1/2)
YD BUFFER
Y BUFFER
IC203 (1/2)
Q248 (1/2) GAIN SWITCH
Q225 GAIN SWITCH
IC202 Y-YD DETECT
LPF
DUB AREA (W203 ⑫)
JOG (IC201 ②)
VA PB MODE (IC201 ④)
Q248 (1/2)
RV204 Y COMB
0.32Vp-p
REC
2.5Vp-p
VC-10 BOARD ⑮ REC/PB
0.7Vp-p
VD-10 BOARD ⑤ PB
(See Page 201)
VD-10 BOARD
IC001
COMB FILTER
VA PB MODE (IC201 ④)
DL201 (1/2) 1H DELAY
LV201 CP
RV002 CD
COMB OUT C
YD
DL201 (1/2) 1H DELAY
BURST P (VC-10 ㉝)
SP/LP (IC201 ①)
TP211
LPF
AGC OUT Y
Y/C SEP
LPF
SYNC SEP Y
CORR
NON-CORR
REC
PB
B/W
COLOR
PB ON
NON-CORR
CORR
CORRELATION DET
LPF
COLOR
B/W
REC ON
PB ON
AGC DET
AM DET
DROP OUT
NORMAL
H SYNC INSERT
AM MOD
CLAMP
CLAMP
LIMITER
PB Y
DROP OUT P (VY-12 ⑤)
DOC OFF
JOG (IC201 ②)
Q001, 002 CORR DET SENS SW
10.7MHz
HD INSERT
EDIT
DUB AREA
Y-YD
X201
HD INSERT (W203 ⑭)
EDIT (Q201)
DUB AREA (W203 ⑫)
TP213
0.28Vp-p
10.7MHz
VD-10 BOARD ⑨ REC/PB
0.9Vp-p
TP213 REC/PB
CN204 ③ 0.5Vp-p
TP208 1Vp-p
CN204 ③ TP208 REC
TP208
CN204
VIDEO OUT 2
CN381
SC-9 BOARD (VIDEO)
(See Page 139)
J381 VIDEO OUT
W206
RETURN VIDEO
CAM REC
TALLY
EVF (EM-2)
VA PB MODE (IC201 ⑦)
Q229
CAM/LINE (IC201 ⑤)
TALLY (IC201 ⑥)
SP/LP
Q208, 214, 216, 219 238
Y COMB CHARACTOR SWITCH
CAMERA/LINE (IC201 ⑤)
VA PB MODE (IC201 ⑦)
VA PB MODE (IC201 ④)
TP216
CAL B
COMB IN C
CAR
FL003 BPF
LPF
RV002 CARRIER BALANCE
FL001 4.32MHz CF
SWP x 1/2H (IC003 ㊱)
RV001 VCO
VCO ADJ
TP218
ACK C
IC002 CHROMA PROCESS
CARRIER INVERT
CARRIER CONV
4.32MHz
743KHz
378FH VCO
AFC ID
AFC
3.58MHz
CHROMA CONV
APC DET
BURST EMPH/DE EMPH
SYNC DET
ACK
3.58MHz X'TAL OSC
90° SHIFT
ACC AMP
DC AMP & CH HOLD
PEAK HOLD
SW
CHROMA INVERT
Q002 BUFFER
LPF
BF (IC003 ㊹)
CV001 FSC
X002
ACK DC (IC003 ㊵)
LPF
PB CHROMA
VI SWP
ACC
VI SWP (Q243)
VA PB MODE (IC201 ④)
JOG (IC201 ②)
SV3.58 (W205 ⑭)
TP210
0.6Vp-p
3.58MHz TP210 REC/PB
C SYNC (VY-12 ③)
H SYNC (W203 ⑬)
SYSTEM R (IC201 ⑬)
IC003 AFC, PULSE GENERATOR
BF (IC002)
AFC ID
AFC
1/8
1/378
DELAY PULSE GENERATOR
FH
SYNTHESIS GATE
MALF H KILLER
SW P x 1/2H PULSE GENERATOR
V SEP
BURST P (VD-10 ㉝)
AGC P (VY-12 ④)
VD
JOG VD (W205 ⑰)
JOG VD (VY-12 ⑤)
REF V (W205 ⑮)
VIDEO MUTE (IC201 ⑨)
SW P x 1/2H (IC002 ㊱)
ACK DC (Q002)
3.7Vp-p
2V
VC-10 BOARD ⑬ REC/PB
VA PB MODE (IC201 ④)
VI SW P (Q243)
DUB AREA (W203 ⑫)
4.8Vp-p
7.2Vp-p
VC-10 BOARD ⑫ PB
VC-10 BOARD ⑫ REC
Q201 (1/2)
Q232
LP/SP
MP/ME
TP205
IC201 EXPANSION PORT
SP/LP
JOG
ME/MP
VA PB MODE
CAMERA/LINE
TALLY
VA PB MODE
EDIT
V MUTE
AUDIO MUTE
SP JOG
SYSTEM RESET
SYSTEM RESET ⑯
STB ⑰
SO ⑱
SCK ⑲
Q201 (1/2)
EDIT
W205
SYSTEM RESET
VA SP STB
SO
SCK
JOG VD
JOG VD (VY-12 ⑤)
RP PB MODE (W202 ②)
RP PB MODE
SYSTEM CONTROL (SS-83)

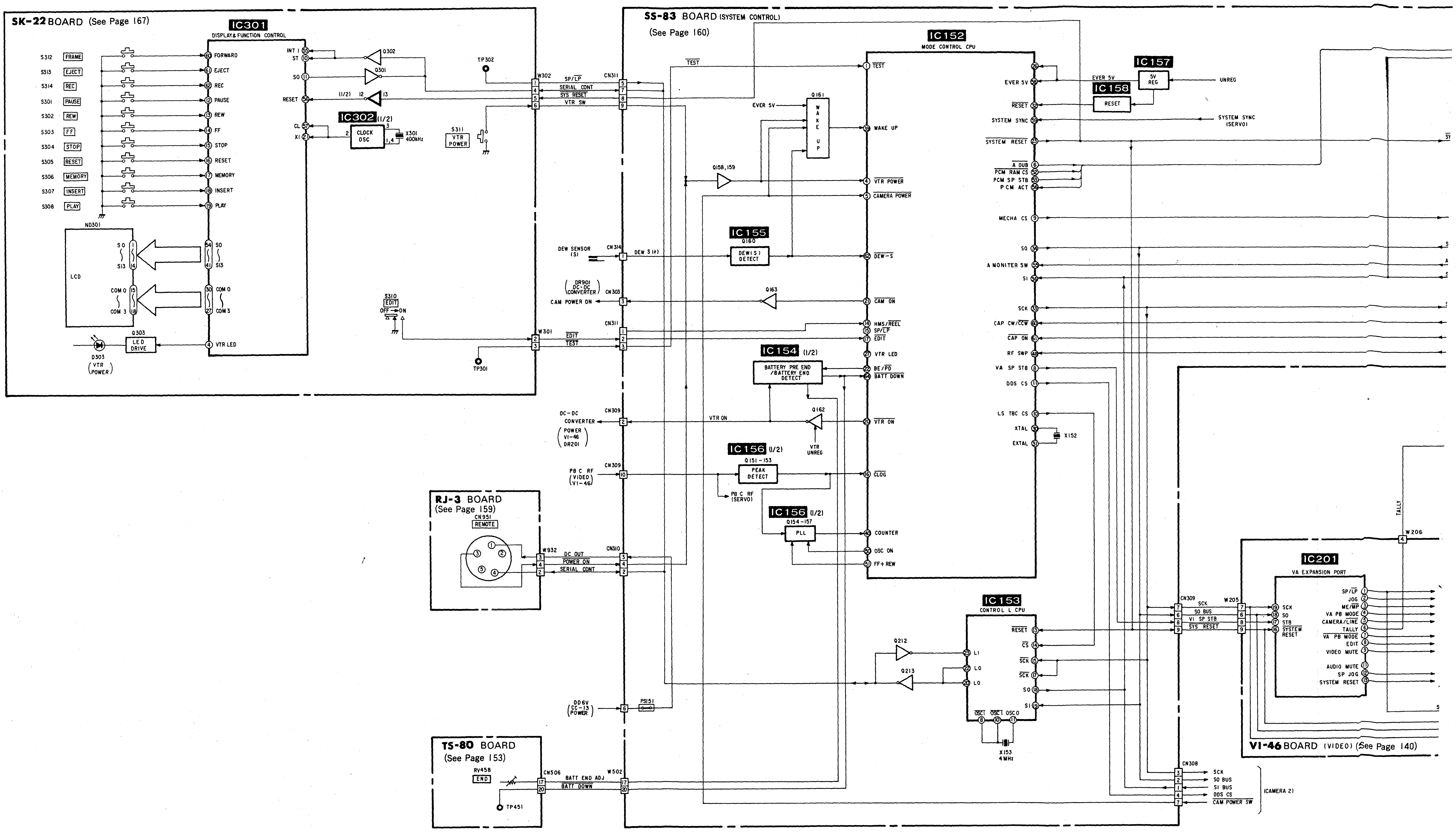
3-8. SERVO BLOCK DIAGRAM


TS-80 BOARD (1/4)
(See Page 153)
D FG
C FG
CN507
CN506
W502
TS-80 BOARD (1/4)
(See Page 153)
RV456
SW P
CN506
RF SW P (A)
(VIDEO) VI-46
REF V
SV3.58
CN309
SS-83 BOARD (See Page 149)
DRUM
FG
PG
D FG A
D PG
D COM
CN305
IC159 (1/2)
WAVE SHAPER
WAVE SHAPER
DC BIAS
CLOCK (IC161 ③)
Q183
AMP
IC160 (1/3)
DFG COMP
SYSTEM CONTROL
(IC151 ⑱) M SP/LP
(IC151 ②) CUE
(IC151 ③) REV
IC160 (1/3)
CAPSTAN STARTER
1/1 – 1/32 PROGRAMMABLE DIVIDER
CAP START
(IC151 ④) P0
(IC151 ⑤) P1
(IC151 ⑥) P2
(IC151 ⑦) P3
(IC151 ㊿) CAP ON
(IC160 ㊷) CUE+REV
(IC151 ㊸) SLOW
(IC151 ㊹) TS A
(IC151 ㊺) TS B
CAP FG SYSTEM CONTROL (IC151 ㊵)
IC161 ⑦ REC/PB
IC161 ⑥ REC/PB
IC161 ⑲ REC
2V
1.38msec
5Vp-p
V
IC161 ㉓ REC/PB
1.04msec
4.8Vp-p
IC165 (1/3)
ATF AC GAIN SW
SLOW OFF
Q187
Q186
CAPSTAN FG HEAD
C FG (+)
C FG (–)
DR-45 BOARD (1/2)
(See Page 152)
W505
W503
CN501
IC159 ⑨ REC/PB
IC159 (1/2)
WAVE SHAPER
1.04msec
112 μsec
IC159 ⑨ CUE
153 usec
IC159 ⑨ REV
RP PB MODE (SYSTEM CONTROL) IC151 ㊹
PB C RF (SYSTEM CONTROL) Q151
IC162
ATF SERVO
CN309
PB C RF
Q185
BUFFER
LPF
PRE AMP
GCA
BALANCED MODULATOR
PEAK DET
PEAK DET
SAMPLING HOLD
SAMPLING HOLD
AMP
SCHMITT
Q184
BUFFER INVERT
RV502
ATF BALANCE
FL501
16kHz BPF
FL502
47kHz BPF
SEL · 16k/47k (IC151 ㊸)
ATF ERROR
ATF LOCK SYSTEM CONTROL Q175
VC-10 BOARD ⑤ REC
VC-10 BOARD ⑥ REC
SERVO 3.58MHz
CLOCK (Q183)
SW POS
M/V
PULSE GENERATOR
REF V
EXT SYNC
DRUM REFERENCE GENERATOR
DRUM FG
DRUM PG
CAP FG
CAPSTAN REFERENCE GENERATOR
SERVO RST (IC151 ⑩)
PON
RESET
SYSTEM CONTROL
SI BUS (IC151 ㉞)
SERVO CS (IC151 ㊲)
SO BUS (IC151 ㊱)
SCK (IC151 ㉝)
SO
CS
SI
SCK
INTERFACE
MODE MEMORY
CAPST
C ON MM (IC151 ①)
M SP/LP (IC151 ⑱)
S.G.C (IC151 ㊿)
SYSTEM CONTROL
DRUM
VIDEO HEAD
CH 1
CH 2
CH 1'
CN101
RP-57 BOARD
(See Page 129)
REC/PB AMP
W201
W202
ATF PILOT
PB C RF
PB VI RF
REC ATF RF
0.5Vp-p
H
TP221, W201 ③ PB
VI-46 BOARD (VIDEO) (See Page 140)
W205
W201
W202
Q230
BUFFER
PB Y
PB C
PB AFM
ATF PILOT
Q220,221
LPF
0.52Vp-p
10μsec
Q220 Ⓔ E-E
VI SWP (Q243)
SYSTEM R (IC201 ⑬)
RESET
VC-10 BOARD (See Page 196)
IC003
1/58 1/50 1/36 1/40
CLOCK SWITCH
5.9MHz OSC
X001
5.9MHz (VIDEO)
D001
Q001
ACK (VIDEO)
VA PB MODE (IC201 ④)
W205
SEL 1
SEL 2
CN309
SEL 1 (IC151 ⑫)
SEL 2 (IC151 ⑬)
SYSTEM CONTROL

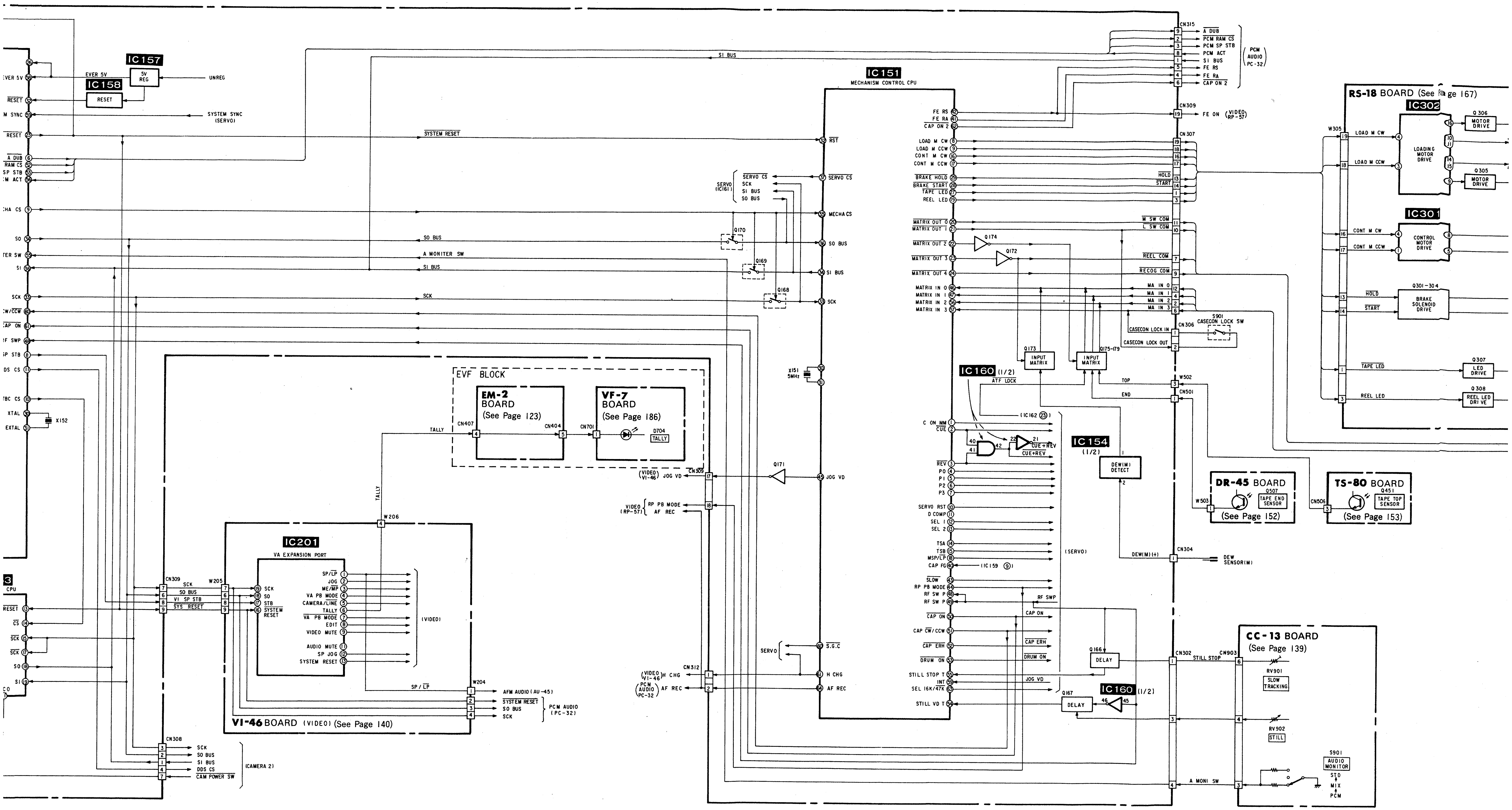

TS-80 BOARD (1/4) (See Page 153)
RV456 SW P
CN506
RF SW P ADJ
W502
TS-80 BOARD (1/4) (See Page 153)
CN507
ADE
D REF
RV451 DRUM BIAS
D BIAS ADJ
RF SW P (PCM AUDIO PC-32)
RF SW P (VIDEO VI-46)
RF SW P (AUDIO AU-45)
SYSTEM SYNC (PCM AUDIO PC-32)
(VIDEO VI-46) REF V SV 3.58
CN309
W315
DR-45 (See Page 152) BOARD (1/2)
IC501 DRUM MOTOR DRIVE
IC161 CAPSTAN/DRUM SERVO
SW POS
MMV
PULSE GENERATOR
JOG VD
VG ISA
RF SW P
REF V
EXT SYNC
DRUM REFERENCE GENERATOR
DRUM COUNTER
D/A CONT
D SP DA
DRUM FG
D/A CONV
D PH DA
DRUM PG
DC BIAS MEMORY
DC DA
CAP FG
CAPSTAN COUNTER
CPH DA
CSP DA
PON
RESET
CAPSTAN REFERENCE GENERATOR
SERVO RST
TIMING GENERATOR
TF 4
SYSTEM CONTROL
SI BUS
SO
SERVO CS
SI
SO BUS
SCK
INTERFACE
MODE MEMORY
OSC
XA
CLOCK (Q183)
SERVO 3.58MHz
3.58MHz
IC161 ② REC/PB
0.5Vp-p
IC161 ⑦ REC/PB
5Vp-p
2V
IC161 ⑥ REC/PB
1.38msec
IC161 ⑲ REC
V
IC161 ㉓ REC/PB
4.8Vp-p
1.04msec
IC161 ④ REC/PB
3.6Vp-p
10μsec
TF 4 (Q203-206)
SYSTEM SYNC (IC152 ㊾)
JOG VD (IC151 ㊾)
RF SW P (IC151 ㊽㊾) (IC152 ㊽)
SYSTEM CONTROL
4Vp-p
IC161 ⑱ REC/PB
4.2Vp-p
IC161 ⑧ REC/PB
30Hz NOTCH FILTER
IC163 (1/4)
DRUM ERROR AMP
IC164 (1/2)
Q209
DRUM ON (IC151 ㊸)
DRUM ERROR
DRUM ON
POWER FF
UNREG
OVER LOAD DET
Q189
CUE/REVIEW DRUM SPEED CORRECTION
CUE (IC151 ②)
REV (IC151 ③)
IC163 (1/4) DRUM SPEED ERROR AMP
IC164 (1/2) ANALOG DRUM SERVO
F-V CONV
Q197, 198
SLOW
CAP ERH
M LP/SP
CAP ON
DRUM COMP
DRUM BIAS
CW/CCW
EMF MO
CAP START
CAP START (IC160 ㉖)
D158
Q203-206
FREQUENCY LOCK
TW
IC163 (1/4) CAPSTAN ERROR AMP
IC166 (1/4) SERVO DC GAIN SW
M LP/SP (Q196)
IC166 (1/4) SPEED AC GAIN SW
SLOW 2 (SYSTEM CONTROL) (IC151 ㊸)
LP-SLOW ON
SP-SLOW ON
IC166 (1/4) ATF AC GAIN SW
IC166 (1/4) SERVO AC GAIN SW
CAP BIAS
CUE + REV
IC160 (1/3)
IC165 (1/3) ATF DC GAIN SW
IC165 (1/3) ATF AC GAIN SW
Q187
Q186
SLOW OFF
SAMPLING HOLD
AMP
SCHMITT
ATF ERROR
ATF LOCK (SYSTEM CONTROL) (Q175)
CAP START
CAPSTAN STARTER
5Vp-p
2V
VC-10 BOARD ⑤ REC
4V
VC-10 BOARD ⑥ REC
D001
Q001
VA PB MODE (IC201 ④)
ACK (VIDEO)
5.9MHz OSC
X001
W205
SEL 1
SEL 2
SEL 1 (IC151 ⑫)
SEL 2 (IC151 ⑬)
SYSTEM CONTROL
TS-80 BOARD (1/4) (See Page 153)
IC452 (1/2) SAMPLING
IC451 (1/2) HOLD BUFFER
IC451 (1/2) SLOW BIAS AMP
SHB
W501
C ON MM (IC151 ①)
M SP/LP (IC151 ⑱)
S.G.C (IC151 ㊿)
CN508
IC452 (1/2)
RV455 SLOW SP
RV454 SLOW LP
Q452
Q453
RV459 FRAME
ATF LOCK
SLOW BIAS
RV452 SP
RV453 LP
CAP SP ADJ
CAP LP ADJ
Q190-195
CUE/REVIEW CAPSTAN SPEED CORRECTION
C SE
M LP/SP
Q196
IC165 (1/3) CAP BIAS SWITCH
SP SLOW
LP SLOW
SP
LP
IC163 (1/4) CAP BIAS BUFFER
SLOW (IC151 ㊸)
M SP/LP (IC151 ⑱)
Q211
Q188
CAP ERH (SYSTEM CONTROL) (IC151 52)
CAP ERROR
Q207, 208
CAP CW/CCW (IC151 51)
Q210
CAP ON (IC151 50)
IC502 CAPSTAN MOTOR DRIVE
OSC
COMP
PULSE WIDTH MODUL
Q502 CAP ON INHIBIT
POWER OFF
Q503 EMERGENCY DETECT
CAP Vcc
Q199, 200 CAP BIAS DISCHARGE
Q180-182
RV151 MOTOR POWER
MOTOR POWER REG
CAP VS
VHE
UHE
WHE
CN501
W503


TS-80 BOARD (1/4)
(See Page 153)
CN507
ADE
D REF
RV451
DRUM BIAS
CN506
D REF
ADE
D BIAS ADJ
W502
30Hz NOTCH FILTER
IC163 (1/4)
DRUM ERROR AMP
IC164 (1/2)
4Vp-p
IC161 ⑱ REC/PB
4.2Vp-p
IC161 ⑧ REC/PB
IC163 (1/4)
DRUM SPEED ERROR AMP
Q189
CUE/REVIEW DRUM SPEED CORRECTION
CUE (IC151 ②)
REV (IC151 ③)
SYSTEM CONTROL
IC164 (1/2)
ANALOG DRUM SERVO
F-V CONV
DRUM ON (IC151 ㊸)
Q209
Q197,198
DRUM COMP
SYSTEM CONTROL
(IC151 ㊸) SLOW
(IC151 ㊷) CAP ERH
(Q196) M LP/SP
(Q211) CAP ON
Q203-206
(IC161 ④) TF 4
FREQUENCY LOCK
IC163 (1/4)
CAPSTAN ERROR AMP
IC166 (1/4)
SERVO DC GAIN SW
M LP/SP (Q196)
IC166 (1/4)
ATF AC GAIN SW
IC166 (1/4)
SERVO AC GAIN SW
CAP BIAS
CAP START (IC160 ㉖)
D158
Q188
CAP ERH
SYSTEM CONTROL (IC151 ㊷)
CUE + REV
CUE (IC151 ②)
REV (IC151 ③)
SYSTEM CONTROL
IC160 (1/3)
CUE + REV
Q207,208
CAP CW/CCW (IC151 ㊿)
SYSTEM CONTROL
Q210
CAP ON (IC151 ㊿)
Q190-195
CUE/REVIEW CAPSTAN SPEED CORRECTION
C SE
CUE (IC151 ②)
REV (IC151 ③)
M SP/LP (IC151 ⑱)
SYSTEM CONTROL
M LP/SP
Q196
IC165 (1/3)
CAP BIAS SWITCH
SP SLOW
LP SLOW
SP
LP
Q211
IC163 (1/4)
CAP BIAS BUFFER
CN506 SLOW BIAS W502
CAP SP ADJ
CAP LP ADJ
CAP ON
SLOW (IC151 ㊸)
M SP/LP (IC151 ⑱)
SYSTEM CONTROL
Q199,200
CAP BIAS DISCHARGE
RV151
MOTOR POWER
Q180-182
UNREG
MOTOR POWER REG
CN501 DRUM ERROR W503
DRUM ON
CN501 DRUM BIAS W503
CN501 TW W503
CN501 CAP ERROR W503
CAP BIAS
CAP CW/CCW
CAP ON
CN501 CAP VS W503
CAP Vcc
CAP Vcc
DR-45 (See Page 152)
BOARD (1/2)
IC501
DRUM MOTOR DRIVE
Q501
PROTECT
S/S 5V
Q505
UNREG
PWM POWER DRIVE
LPF
CN504
D COM
DRUM(U)
DRUM(V)
DRUM(W)
DRUM MOTOR
OSC
PULSE WIDTH MODULATION
POWER OFF
UNREG
OVER LOAD DET
Vcc
BRAKE
IB CONTROL
UL
VL
WL
EMF DET
CW/CCW
EMF MIX
STARTER
Q508
D COM VOLTAGE DETECT
TW
UNREG
Q506
PWM POWER DRIVE
LPF
Q504
CAP Vcc
PROTECT
IC502
CAPSTAN MOTOR DRIVE
OSC
COMP
PULSE WIDTH MODULATION
CAP CW/CCW
Q502
CAP ON INHIBIT
POWER OFF
120° LOGIC
Vcc
CAP Vcc
HE POWER
IB CONT
VHE (+) (−)
UHE (+) (−)
WHE (+) (−)
W505
CAP(U)
CAP(V)
CAP(W)
CAPSTAN MOTOR
Q503
EMERGENCY DETECT
CAP Vcc
Q501
LEVEL SHIFT
HALL DEVICE
W505
VE
UHE (+), (−)
VHE (+), (−)
WHE (+), (−)

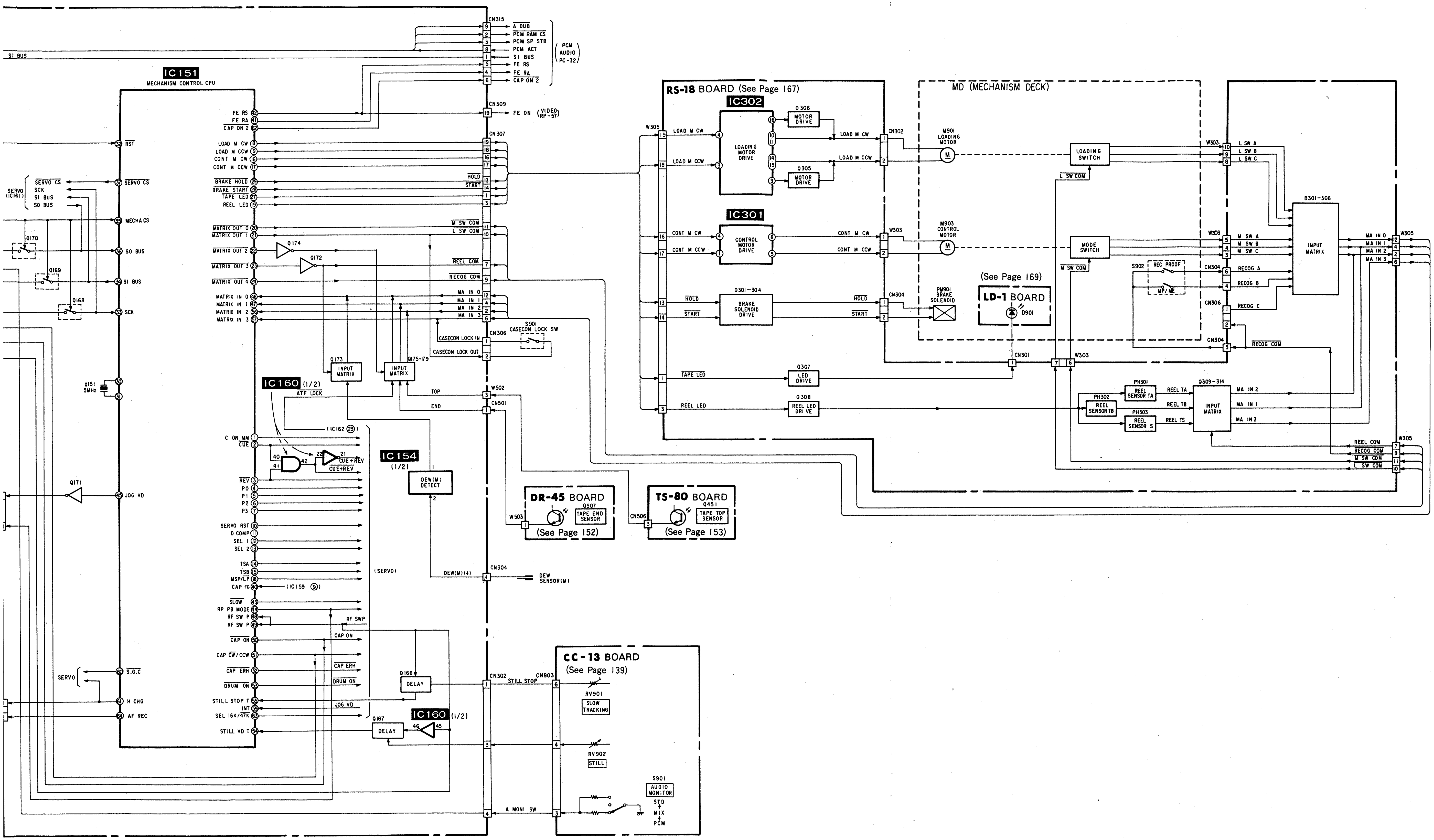
3-9. SYSTEM CONTROL BLOCK DIAGRAM



SK-22 BOARD (See Page 167)
IC301
DISPLAY & FUNCTION CONTROL
S312 FRAME
S313 EJECT
S314 REC
S301 PAUSE
S302 REW
S303 FF
S304 STOP
S305 RESET
S306 MEMORY
S307 INSERT
S308 PLAY
FORWARD
EJECT
REC
PAUSE
REW
FF
STOP
RESET
MEMORY
INSERT
PLAY
ND301
LCD
SO
SI3
COM 0
COM 3
Q303
LED DRIVE
D303 (VTR POWER)
VTR LED
INT 1
ST
SO
RESET
CL
XI
Q302
Q301
IC302 (1/2)
CLOCK OSC
X301 400kHz
TP302
S311 VTR POWER
S310 EDIT
OFF ON
TP301
W302
SP/LP
SERIAL CONT
SYS RESET
VTR SW
W301
EDIT
TEST
SS-83 BOARD (SYSTEM CONTROL)
(See Page 160)
CN311
IC152
MODE CONTROL CPU
TEST
WAKE UP
VTR POWER
CAMERA POWER
DEW-S
CAM ON
HMS/REEL
SP/LP
EDIT
VTR LED
BE/PD
BATT DOWN
VTR ON
CLOG
COUNTER
OSC ON
FF+REW
EVER 5V
RESET
SYSTEM SYNC
SYSTEM RESET
A DUB
PCM RAM CS
PCM SP STB
PCM ACT
MECHA CS
SO
A MONITER SW
SI
SCK
CAP CW/CCW
CAP ON
RF SWP
VA SP STB
DDS CS
LS TBC CS
XTAL
EXTAL
X152
IC157
5V REG
UNREG
IC158
RESET
SYSTEM SYNC (SERVO)
Q161
WAKE UP
Q158, 159
IC155
Q160
DEW(S) DETECT
DEW SENSOR (S)
CN314
DEW S (+)
DR901 DC-DC CONVERTER
CN303
CAM POWER ON
Q163
IC154 (1/2)
BATTERY PRE END /BATTERY END DETECT
Q162
VTR ON
VTR UNREG
DC-DC CONVERTER
POWER (VI-46 DR201)
CN309
PB C RF (VIDEO) (VI-46)
IC156 (1/2)
Q151-153
PEAK DETECT
PB C RF (SERVO)
IC156 (1/2)
Q154-157
PLL
RJ-3 BOARD
(See Page 159)
CN951
REMOTE
W932
DC OUT
POWER ON
SERIAL CONT
CN310
DD6V (CC-13 POWER)
PS151
TS-80 BOARD
(See Page 153)
RV458
END
TP451
CN506
BATT END ADJ
BATT DOWN
W502
IC153
CONTROL L CPU
RESET
CS
SCK
SCK
SO
SI
LI
LO
LO
OSCI
OSCI
OSCO
X153 4MHz
Q212
Q213
CN309
W205
SCK
SO BUS
VI SP STB
SYS RESET
IC201
VA EXPANSION PORT
SCK
SO
STB
SYSTEM RESET
SP/LP
JOG
ME/MP
VA PB MODE
CAMERA/LINE
TALLY
VA PB MODE
EDIT
VIDEO MUTE
AUDIO MUTE
SP JOG
SYSTEM RESET
TALLY
W206
VI-46 BOARD (VIDEO) (See Page 140)
CN308
SCK
SO BUS
SI BUS
DDS CS
CAM POWER SW
(CAMERA 2)



IC157
5V REG
UNREG
IC158
RESET
EVER 5V
SYSTEM SYNC (SERVO)
SYSTEM RESET
SI BUS
IC151
MECHANISM CONTROL CPU
CN315
A DUB
PCM RAM CS
PCM SP STB
PCM ACT
SI BUS
FE RS
FE RA
CAP ON 2
PCM AUDIO PC-32
CN309
FE ON (VIDEO RP-57)
CN307
RS-18 BOARD (See Page 167)
IC302
LOADING MOTOR DRIVE
Q306 MOTOR DRIVE
Q305 MOTOR DRIVE
LOAD M CW
LOAD M CCW
IC301
CONTROL MOTOR DRIVE
CONT M CW
CONT M CCW
Q301-304
BRAKE SOLENOID DRIVE
HOLD
START
Q307 LED DRIVE
TAPE LED
Q308 REEL LED DRIVE
REEL LED
W305
FE RS
FE RA
CAP ON 2
RST
LOAD M CW
LOAD M CCW
CONT M CW
CONT M CCW
BRAKE HOLD
BRAKE START
TAPE LED
REEL LED
SERVO CS
SCK
SI BUS
SO BUS
SERVO (IC161)
MECHA CS
SO BUS
SI BUS
SCK
Q170
Q169
Q168
A MONITER SW
MATRIX OUT 0
MATRIX OUT 1
MATRIX OUT 2
MATRIX OUT 3
MATRIX OUT 4
MATRIX IN 0
MATRIX IN 1
MATRIX IN 2
MATRIX IN 3
Q174
Q172
M SW COM
L SW COM
REEL COM
RECOG COM
MA IN 0
MA IN 1
MA IN 2
MA IN 3
S901 CASECON LOCK SW
CN306
CASECON LOCK IN
CASECON LOCK OUT
Q173 INPUT MATRIX
Q175-179 INPUT MATRIX
X151 5MHz
IC160 (1/2)
ATF LOCK
(IC162 (23))
TOP
END
W502
CN501
EVF BLOCK
EM-2 BOARD (See Page 123)
CN407
CN404
VF-7 BOARD (See Page 186)
CN701
D704 TALLY
TALLY
C ON MM
CUE
CUE+REV
IC154 (1/2)
DEW(M) DETECT
DR-45 BOARD
Q507 TAPE END SENSOR
(See Page 152)
W503
TS-80 BOARD
Q451 TAPE TOP SENSOR
(See Page 153)
CN506
Q171
JOG VD
(VIDEO VI-46) JOG VD
CN305
VIDEO (RP-57) RP PB MODE AF REC
REV
PO
P1
P2
P3
SERVO RST
D COMP
SEL 1
SEL 2
TSA
TSB
MSP/LP
CAP FG
(IC159 (9))
(SERVO)
DEW(M)(+)
CN304
DEW SENSOR(M)
SLOW
RP PB MODE
RF SW P
RF SW P
RF SWP
CAP ON
CAP CW/CCW
CAP ERH
DRUM ON
STILL STOP T
INT
SEL 16K/47K
STILL VD T
JOG VD
Q166 DELAY
Q167 DELAY
IC160 (1/2)
S.G.C
SERVO
H CHG
AF REC
CN312
(VIDEO VI-46) H CHG
(PCM AUDIO PC-32) AF REC
CC-13 BOARD (See Page 139)
CN302
STILL STOP
CN903
RV901 SLOW TRACKING
RV902 STILL
S901 AUDIO MONITOR
STD
MIX
PCM
A MONI SW
W206
IC201
VA EXPANSION PORT
SP/LP
JOG
ME/MP
VA PB MODE
CAMERA/LINE
TALLY
VA PB MODE
EDIT
VIDEO MUTE
AUDIO MUTE
SP JOG
SYSTEM RESET
(VIDEO)
SCK
SO
STB
SYSTEM RESET
CN309
W205
SCK
SO BUS
VI SP STB
SYS RESET
W204
AFM AUDIO (AU-45)
SYSTEM RESET
SO BUS
SCK
PCM AUDIO (PC-32)
VI-46 BOARD (VIDEO) (See Page 140)
CN308
SCK
SO BUS
SI BUS
DDS CS
CAM POWER SW
(CAMERA 2)
EVER 5V
RESET
M SYNC
RESET
A DUB
RAM CS
SP STB
M ACT
CHA CS
SO
TER SW
SI
SCK
CW/CCW
CAP ON
RF SWP
SP STB
DS CS
TBC CS
XTAL
EXTAL
X152
CPU
RESET
CS
SCK
SCK
SO
SI


IC151
MECHANISM CONTROL CPU
SI BUS
CN315
A DUB
PCM RAM CS
PCM SP STB
PCM ACT
SI BUS
FE RS
FE RA
CAP ON 2
PCM AUDIO PC-32
CN309
FE ON (VIDEO RP-57)
CN307
LOAD M CW
LOAD M CCW
CONT M CW
CONT M CCW
BRAKE HOLD
BRAKE START
TAPE LED
REEL LED
HOLD
START
M SW COM
L SW COM
MATRIX OUT 0
MATRIX OUT 1
MATRIX OUT 2
MATRIX OUT 3
MATRIX OUT 4
REEL COM
RECOG COM
MATRIX IN 0
MATRIX IN 1
MATRIX IN 2
MATRIX IN 3
MA IN 0
MA IN 1
MA IN 2
MA IN 3
RST
SERVO CS
SCK
SI BUS
SO BUS
SERVO (IC161)
MECHA CS
Q170
Q169
Q168
Q174
Q172
Q173
INPUT MATRIX
Q175-179
CN306
S901
CASECON LOCK SW
CASECON LOCK IN
CASECON LOCK OUT
X151 5MHz
IC160 (1/2)
ATF LOCK
(IC162 ㉓)
W502
TOP
CN501
END
C ON MM
CUE
CUE+REV
REV
P0
P1
P2
P3
Q171
JOG VD
SERVO RST
D COMP
SEL 1
SEL 2
TSA
TSB
MSP/LP
CAP FG
(IC159 ⑨)
(SERVO)
SLOW
RP PB MODE
RF SW P
RF SWP
CAP ON
CAP CW/CCW
CAP ERH
DRUM ON
S.G.C
H CHG
AF REC
SERVO
STILL STOP T
INT
SEL 16K/47K
STILL VD T
IC154 (1/2)
DEW(M) DETECT
CN304
DEW(M)(+)
DEW SENSOR(M)
Q166
DELAY
Q167
IC160 (1/2)
CN302
STILL STOP
CN903
A MONI SW
DR-45 BOARD
Q507
TAPE END SENSOR
W503
(See Page 152)
TS-80 BOARD
Q451
TAPE TOP SENSOR
CN506
(See Page 153)
CC-13 BOARD
(See Page 139)
RV901
SLOW TRACKING
RV902
STILL
S901
AUDIO MONITOR
STD
MIX
PCM
RS-18 BOARD (See Page 167)
IC302
W305
LOADING MOTOR DRIVE
Q306
MOTOR DRIVE
Q305
MOTOR DRIVE
LOAD M CW
LOAD M CCW
CN302
IC301
CONTROL MOTOR DRIVE
CONT M CW
CONT M CCW
W303
Q301-304
BRAKE SOLENOID DRIVE
HOLD
START
CN304
Q307
LED DRIVE
TAPE LED
Q308
REEL LED DRIVE
REEL LED
CN301
MD (MECHANISM DECK)
M901
LOADING MOTOR
M903
CONTROL MOTOR
PM901
BRAKE SOLENOID
LOADING SWITCH
L SW COM
MODE SWITCH
M SW COM
(See Page 169)
LD-1 BOARD
D901
S902
REC PROOF
MP/ME
CN306
RECOG A
RECOG B
RECOG C
RECOG COM
L SW A
L SW B
L SW C
M SW A
M SW B
M SW C
D301-306
INPUT MATRIX
PH301
REEL SENSOR TA
PH302
REEL SENSOR TB
PH303
REEL SENSOR S
Q309-314
INPUT MATRIX
REEL TA
REEL TB
REEL TS
REEL COM
RECOG COM
M SW COM
L SW COM

3-10. MODE CONTROL CPU (IC151 ON SS-83 BOARD) — PERIPHERAL CIRCUIT INTERFACE

Signal name	I/O	PIN No.	Input/Output level
$\overline{\mathrm{TEST}}$	I	①	Pull-up to "H" level. It becomes TEST mode when "L".
VTR POWER ON	I	④	"L" when the VTR POWER button of the main unit or the remote control unit is pressed.
CAMERA POWER ON	I	⑤	"L" when the CAMERA POWER switch (S706 on CG-2 board) is pressed.
$\overline{\mathrm{A\ DUB}}$	I	⑥	"L" when the AUDIO DUB switch (S199 on DL-22 board) is pressed.
VA SP STB	O	⑧	A strobe signal ("H" pulse of V cycle) for the EXPANSION PORT (IC201 on VI-46 board) for the video circuit.
MECHA CS	O	⑨	A communication request signal ("H" pulse of V cycle) to the mechanism control CPU (IC151 on SS-83 board).
LS TBC CS	O	⑩	A communication request signal ("L" pulse of V cycle) to the control L CPU (IC153 on SS-83 board).
DDS CS	O	⑪	A communication request signal ("H" pulse of V cycle) to the CAMERA system control CPU (IC701 on FC-15 board).
HMS/$\overline{\mathrm{REEL}}$	I	⑭	"H" when the counter (HMS/REEL) switch (S309 on SK-22 board) is on the 1 (HMS) side.
SP/$\overline{\mathrm{LP}}$	I	⑮	Pull-up to the "H" level.
$\overline{\mathrm{CLOG}}$	I	⑯	During SP mode playback. "H" when the PB RF signal is played back normally.
$\overline{\mathrm{EDIT}}$	I	⑰	"L" when the EDIT switch (S310 on SK-22 board) is ON.
$\overline{\mathrm{VTR\ ON}}$	O	⑳	When it is at "L", the DC-DC converter (DR201) on VI-46 board is turned ON.
$\overline{\mathrm{CAM\ ON}}$	O	㉑	When it is at "L", the DC-DC converter on the CAMERA is turned ON.
BE/$\overline{\mathrm{PD}}$	O	㉒	"L" when in the battery pre-end detection and TEST mode.
$\overline{\mathrm{SYSTEM\ RESET}}$	O	㉓	When the power supply is turned ON, reset the respective CPUs. ("L" when resetting.)
$\overline{\mathrm{RESET}}$	I	㉜	A resetting input when turning the UNREG power supply ON/OFF. ("L" pulse when resetting.)
$\overline{\mathrm{SCK}}$	I/O	㉝	Serial data transfer clock input/output for communication to the respective CPUs. ("L" pulse train of the V cycle.)
SO	O	㉞	Serial data output for communication to the respective CPUs. ("H" pulse train of the V cycle.)
SI	I	㊱	Serial data input for communication to the respective CPUs. ("L" pulse train of the V cycle.)
WAKE UP	I	㊴	A selection pulse (⊓) input from the power save mode to the normal mode.
COUNTER	I	㊵	A pulse (⊔) input for the tape counter when in CUE/REVIEW and FF/REW modes.
RF SW PULSE	I	㊽	A pulse input of 30 Hz duty 50%.
OSC ON	O	㊿	"H" when FF/REW mode and CUE/REV mode.
FF+REW	O	(51)	"H" when FF/REW mode.
$\overline{\mathrm{PCM\ RAM\ CS}}$	O	(52)	A communication request signal ("L" pulse of V cycle) to the PCM audio process IC (IC301 on DA-6 board on PC-32 board).
PCM SP CS	O	(53)	A strobe signal ("H" pulse of V cycle) for the EXPANSION PORT (IC016 on PC-32 board) for the PCM audio circuit.
SHUTTER SW	I	(54)	Pull-up to the "H" level.
A MONITOR SW	I	(55)	Input level dependent upon the position of the AUDIO MONITOR switch (S901 on CC-13 board) as follows : PCM ··· 3V, MIX ··· 5V, STD ··· 1V
SYSTEM SYNC	I	(59)	An interruption request signal (V cycle pulse) from the servo IC. (IC161 on SS-83 board)
CAP CW/$\overline{\mathrm{CCW}}$	I	(60)	An input for the tape counter. "H" when the capstan is rotating in FWD direction.
$\overline{\mathrm{CAP\ ON}}$	I	(61)	An input for the tape counter. "L" when the capstan is rotating.
$\overline{\mathrm{DEW\ S}}$	I	(62)	"L" when dew (condensation) has formed in the mechanism.
$\overline{\mathrm{BATT\ DOWN}}$	O	(64)	"L" when the battery is down.

3-11. SYSTEM CONTROL — CAMERA AND VIDEO BLOCK INTERFACE

Signal name	I/O	REF No. PIN No.	STOP	FF	REW	CUE	REVIEW	PB	PB・PAUSE
SP/$\overline{\mathrm{LP}}$	O	VI-46 BOARD IC201①	H	H	H	*1	*1	*2	*1
JOG	O	VI-46 BOARD IC201②	L	L	L	H	H	L	H
ME/$\overline{\mathrm{MP}}$	O	VI-46 BOARD IC201③	*3	*3	*3	*3	*3	*3	*3
VA PB MODE	O	VI-46 BOARD IC201④	L	L	L	H	H	H	H
CAM/$\overline{\mathrm{LINE}}$	O	VI-46 BOARD IC201⑤	L *4	L *4	L *4	L *4	L *4	L *4	L *4
TALLY	O	VI-46 BOARD IC201⑥	L	L	L	L	L	L	L
$\overline{\mathrm{VA\ PB\ MODE}}$	O	VI-46 BOARD IC201⑦	H	H	H	L	L	L	L
$\overline{\mathrm{EDIT}}$	O	VI-46 BOARD IC201⑧	H *5	H *5	H *5	H *5	H *5	H *5	H *5
V MUTE	O	VI-46 BOARD IC201⑨	L	L	L	L	L	L	L
SP JOG	O	VI-46 BOARD IC201⑫	L	L	L	*9	*9	L	*9
SYSTEM RESET	O	VI-46 BOARD IC201⑬	L	L	L	L	L	L	L
FE RS	O	SS-83 BOARD IC151㊷	L	L	L	L	L	L	L
RP PB MODE	O	SS-83 BOARD IC151㊹	H	H	H	H	H	H	H
JOG VD	O	SS-83 BOARD IC151㊺	L	L	L	*6	*6	L	*6
$\overline{\mathrm{VTR\ ON}}$	O	SS-83 BOARD IC152⑳	L	L	L	L	L	L	L
$\overline{\mathrm{CAM\ ON}}$	O	SS-83 BOARD IC152㉑	H *7	H *7	H *7	H *7	H *7	H *7	H *7
H CHG	O	SS-83 BOARD IC151(61)	L	L	L	L	L	L	*10
AF REC	O	SS-83 BOARD IC151(64)	L	L	L	L	L	L	L

*1. Maintains the prior level. "H" when SP mode, "L" when LP mode.
*2. Dependent upon recording mode (SP/LP) of playback tape. "H" when SP mode, "L" when LP mode.
*3. Dependent upon the type of tape. "L" for MP type.
*4. "H" when power supply is ON ($\overline{\mathrm{CAM\ ON}}$= "L") at the camera section.
*5. "L" when EDIT switch (S310 on SK-22 board) is ON.
*6. Pulse of V cycle (⊓).
*7. "L" when VTR+CAMERA mode.(After turning the VTR POWER ON with the VTR POWER switch, operate the camera section by pressing the CAMERA POWER switch.)
*8. "L" when VTR+CAMERA or CAMERA mode.
*9. "H" when SP mode, "L" when LP mode.
*10. 30 Hz, 50% duty pulse when SP mode, "L" when LP mode.
*11. 60 Hz "H" pulse.

CUE	REVIEW	PB	PB · PAUSE	FRAME	REC	REC · PAUSE	REVERSE	AUDIO DUB	AUDIO DUB PAUSE	INSERT	INSERT PAUSE
*1	*1	*2	*1	*1	H	H	*1	*2	*1	*2	*1
H	H	L	H	H	L	L	H	L	H	L	L
*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
H	H	H	H	H	L	L	H	H	H	L	L
L *4	L *4	L *4	L *4	L *4	L *4	L *4	L *4	L *4	L *4	L *4	L *4
L	L	L	L	L	L *4	L	L	L	L	L *4	L
L	L	L	L	L	H	H	L	L	L	H	H
H *5	H *5	H *5	H *5	H *5	H *5	H *5	H *5	H *5	H *5	H *5	H *5
L	L	L	L	L	L	L	L	L	L	L	L
*9	*9	L	*9	*9	L	L	*9	L	*9	L	L
L	L	L	L	L	L	L	L	L	L	L	L
L	L	L	L	L	H	L	L	*11	L	H	L
H	H	H	H	H	L	H	H	H	H	L	H
*6	*6	L	*6	*6	L	L	*6	L	*6	L	L
L	L	L	L	L	L	L	L	L	L	L	L
H *7	H *7	H *7	H *7	H *7	H *8	H *8	H *7	H *7	H *7	H *7	H *7
L	L	L	*10	*10	L	L	L	L	*10	L	L
L	L	L	L	L	L	L	L	H	H	L	L

P mode, "L" when LP mode.

th the VTR POWER switch,

3-12. SYSTEM CONTROL — MECHANISM BLOCK INTERFACE

Signal name	I/O	REF No. PIN No.	STOP	FF	REW	CUE	REV	PB	PB · PAUSE	RE
MODE SW *1	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD W303⑥~③)	3	6	6	1	5	1	1	1
LOAD SW *2	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD W303⑩~⑦)	3	3	3	3	3	3	3	3
CASSETTE LOCK SW	I	SS-83 BOARD IC151 MATRIX IN (CN306 W303①②)	ON	ON	ON	ON	ON	ON	ON	ON
TAPE TOP	I	SS-83 BOARD IC151 MATRIX IN (W502③)	Normally "L", "H" at tape top.							
TAPE END	I	SS-83 BOARD IC151 MATRIX IN (CN501①)	Normally "L", "H" at tape end.							
$\overline{\text{DEW (M)}}$	I	SS-83 BOARD IC151 MATRIX IN (IC154①)	Normally "H", "L" when dew condensation has formed.							
REEL TA	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD Q309)	ON/OFF by rotation of T reel (take-up).							
REEL TB	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD Q311)	ON/OFF by rotation of T reel (take-up).							
REEL S	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD Q313)	ON/OFF by rotation of S reel (supply).							
CONT M CW	O	SS-83 BOARD IC151 ⑯	Normally "L", "H" pulse only when changing mechanism mode.							
CONT M CCW	O	SS-83 BOARD IC151 ⑰	Normally "L", "H" pulse only when changing mechanism mode.							
LOAD M CW	O	SS-83 BOARD IC151 ⑧	Normally "L", "H" suring tape threading.							
LOAD M CCW	O	SS-83 BOARD IC151 ⑨	Normally "L", "H" suring tape threading.							
$\overline{\text{BRAKE START}}$	O	SS-83 BOARD IC151 ㉘	H	H	H	H	H	H	H	H
$\overline{\text{BRAKE HOLD}}$	O	SS-83 BOARD IC151 ㉙	H	L	L	H	H	H	H	H
$\overline{\text{TAPE LED}}$	O	SS-83 BOARD IC151 ㉗	*3	*3	*3	*3	*3	*3	*3	*3
REEL LED	O	SS-83 BOARD IC151 ⑲	A pulse of approximately 1kHz.							

*1. See "MODE SWITCH PATTERN".
*2. See "LOADING SWITCH PATTERN".
*3. Cycle corresponding to mode with 0.5 msec "L" pulse.

MODE SWITCH PATTERN

(○) CW ← Rotating direction of mode switch → CCW (○)

Switch position (mode)		EJECT		LOAD		FF/REW		STOP		FWD		RVS	
Switch pattern	7	4	7	2	7	6	7	3	7	1	7	5	7
MODE SW A	×	○	×	○	×	○	×	×	×	×	×	×	×
MODE SW B	×	○	×	×	×	×	×	×	×	○	×	○	×
MODE SW C	×	×	×	○	×	×	×	○	×	○	×	×	×

○ ··· Short-circuit
× ··· Open

LOADING SWI

Switch positio (mode)
Switch patterr
LOAD SW A
LOAD SW B
LOAD SW C

NSERT	INSERT PAUSE
*2	*1
L	L
*3	*3
L	L
L *4	L *4
L *4	L
H	H
H *5	H *5
L	L
L	L
L	L
H	L
L	H
L	L
L	L
H *7	H *7
L	L
L	L

3-12. SYSTEM CONTROL — MECHANISM BLOCK INTERFACE

Signal name	I/O	REF No. PIN No.	STOP	FF	REW	CUE	REV	PB	PB・PAUSE	REC	REC・PAUSE	RVS	AUDIO	AUDIO PAUSE	INSERT	INSERT PAUSE
MODE SW *1	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD W303⑥~③)	3	6	6	1	5	1	1	1	1	5	1	1	1	1
LOAD SW *2	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD W303⑩~⑦)	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CASSETTE LOCK SW	I	SS-83 BOARD IC151 MATRIX IN (CN306 W303①②)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
TAPE TOP	I	SS-83 BOARD IC151 MATRIX IN (W502③)	Normally "L", "H" at tape top.													
TAPE END	I	SS-83 BOARD IC151 MATRIX IN (CN501①)	Normally "L", "H" at tape end.													
$\overline{\text{DEW (M)}}$	I	SS-83 BOARD IC151 MATRIX IN (IC154①)	Normally "H", "L" when dew condensation has formed.													
REEL TA	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD Q309)	ON/OFF by rotation of T reel (take-up).													
REEL TB	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD Q311)	ON/OFF by rotation of T reel (take-up).													
REEL S	I	SS-83 BOARD IC151 MATRIX IN (RS-18 BOARD Q313)	ON/OFF by rotation of S reel (supply).													
CONT M CW	O	SS-83 BOARD IC151 ⑯	Normally "L", "H" pulse only when changing mechanism mode.													
CONT M CCW	O	SS-83 BOARD IC151 ⑰	Normally "L", "H" pulse only when changing mechanism mode.													
LOAD M CW	O	SS-83 BOARD IC151 ⑧	Normally "L", "H" suring tape threading.													
LOAD M CCW	O	SS-83 BOARD IC151 ⑨	Normally "L", "H" suring tape threading.													
$\overline{\text{BRAKE START}}$	O	SS-83 BOARD IC151 ㉘	H	H	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{BRAKE HOLD}}$	O	SS-83 BOARD IC151 ㉙	H	L	L	H	H	H	H	H	H	L	H	H	H	H
$\overline{\text{TAPE LED}}$	O	SS-83 BOARD IC151 ㉗	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
REEL LED	O	SS-83 BOARD IC151 ⑲	A pulse of approximately 1kHz.													

*1. See "MODE SWITCH PATTERN".
*2. See "LOADING SWITCH PATTERN".
*3. Cycle corresponding to mode with 0.5 msec "L" pulse.

MODE SWITCH PATTERN

(○) CW ← Rotating direction of mode switch → CCW (○)

Switch position (mode)		EJECT		LOAD		FF/REW		STOP		FWD		RVS	
Switch pattern	7	4	7	2	7	6	7	3	7	1	7	5	7
MODE SW A	×	○	×	○	×	○	×	×	×	×	×	×	×
MODE SW B	×	○	×	×	×	×	×	×	×	○	×	○	×
MODE SW C	×	×	×	○	×	×	×	○	×	○	×	×	×

○ ··· Short-circuit
× ··· Open

LOADING SWITCH PATTERN

(○) CCW ← Rotating direction of mode switch → CW (○)

Switch position (mode)	LOADING TOP		UNLOAD WAITE		DRUM START		T REEL START		LOADING END
Switch pattern	1	7	5	7	4	7	6	7	3
LOAD SW A	×	×	×	×	○	×	○	×	×
LOAD SW B	○	×	○	×	○	×	×	×	×
LOAD SW C	○	×	×	×	×	×	×	×	○

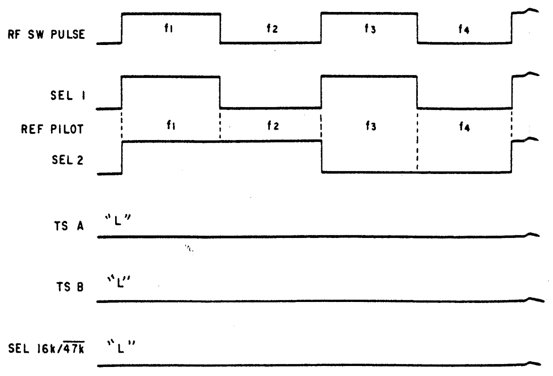
○ ··· Short-circuit
× ··· Open

3-13. MECHANISM CONTROL CPU (IC151 ON SS-83 BOARD) — SERVO BLOCK INTERFACE

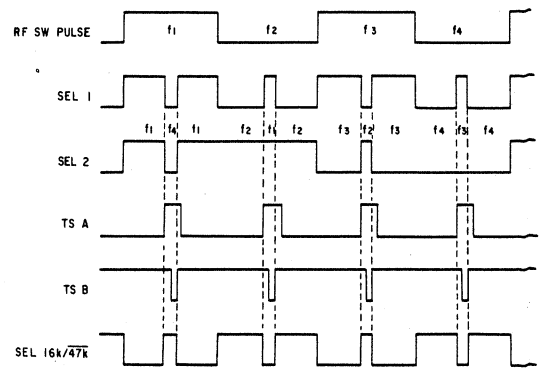
Signal name	I/O	Pin No.	STOP	FF	REW	CUE	REVIEW	PB	PB・PAUSE	FRAME	REC	REC・PAUSE	REVERSE *1	AUDIO DUB	AUDIO DUB PAUSE	INSERT	INSERT PAUSE
C ON MM	O	①	L	L	L	L	L	L	H	*2	L	L	L	L	H	L	L
$\overline{\text{CUE}}$	O	②	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{REVIEW}}$	O	③	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H
PO	O	④	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
P1	O	⑤	L	H	H	L	H	L	L	L	L	L	L	L	L	L	L
P2	O	⑥	L	H	H	L	H	L	L	L	L	L	L	L	L	L	L
P3	O	⑦	L	H	H	H	L	L	L	L	L	L	L	L	L	L	L
SERVO RESET	O	⑩	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
D COMP	O	⑪															
SEL1	O	⑫	H	H	H	*3	*4	*5	H	H *7	*9	H	*10	*18	H	*9	H
SEL2	O	⑬	H	H	H	*3	*4	*5	H/L	H/L	*9	L	*10	*18	H	*9	L
TS A	O	⑭	L	L	L	*3	*4	*5	L	L	L	L	*10	*18	L	L	L
TS B	O	⑮	L	L	L	*3	*4	*5	*6	*8	L	L	*10	*18	*6	L	L
M SP/$\overline{\text{LP}}$	O	⑱	H	H	H	*11	*11	*12	*11	*11	H	H	*11	*12	*11	*12	*11
SCK	I/O	㉝	Serial communication with servo IC (IC161 on SS-83 board).														
SI BUS	O	㉞															
SO BUS	I	㊱															
$\overline{\text{CAP FG}}$	I	㊵	H/L	*13	*13	*13	*13	*13	H/L	*13	*13	H/L	*13	*13	H/L	*13	H/L
$\overline{\text{SLOW}}$	O	㊸	H	H	H	H	H	H	L	L	H	H	H	H	L	H	H
RP PB MODE	O	㊹	L	L	L	H	H	H	H	H	L	L	H	H	H	L	L
RF SW PULSE	I	㊽ ㊾	L	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14
$\overline{\text{CAP ON}}$	O	㊿	H	L	L	L	L	L	H	H *7	L	H	L	L	H	L	L
CAP CW/$\overline{\text{CCW}}$	O	(51)	H	H	L	H	L	H	H	H *7	H	H	L	H	H	H	H
$\overline{\text{CAP ERH}}$	O	(52)	H	H	H	H	H	H	H	H *7	H	H	H	H	H	H	H
$\overline{\text{DRUM ON}}$	O	(53)	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L
STILL VD T	I	(54)	H	30Hz trapezoidal wave which has been synchronized with RF SW PULSE.													
STILL STOP T	I	(55)	H														
JOG VD	I	(59)	L	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15
SEL 16K/$\overline{\text{47K}}$	O	(63)	L	L	L	*3	*4	*5	H	H *16	L	H	*10	*18	H	L	H
$\overline{\text{S.G.C}}$	O	(60)	L	L	L	L	L	L	H	L	L	L	L	L	H	L	L
H CHG	O	(61)	L	L	L	L	L	L	*17	*17	L	L/*17	L	L	*17	L	L/*17

*1. Performed only during REC REVIEW.
*2. "H" pulse (⎍) during frame forwarding.
*3. See timing chart 4.
*4. See timing chart 5.
*5. See timing chart 2.
*6. See timing chart 3.
*7. "L" pulse (⊔) during frame forwarding.
*8. "L" pulse of V cycle. However no "L" pulse during frame forwarding.
*9. See timing chart 1.
*10. See timing chart 6.
*11. Maintains the prior level. "H" when SP mode, "L" when LP mode.
*12. Dependent upon recording mode (SP/LP) of playback tape. "H" when SP mode.
*13. The frequency pulse proportionate to the number of rotations of the capstan motor.
*14. 30 Hz, 50% duty pulse.
*15. "H" pulse of V cycle.
*16. "L" pulse (⊔⊔) during frame forwarding.
*17. 30 Hz, 50% duty pulse when SP mode, "L" when LP mode.
*18. See timing chart 7.

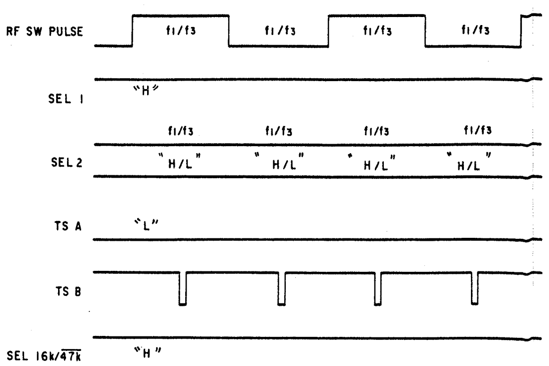
TIMING CHART 1 (REC)


RF SW PULSE
f1
f2
f3
f4
SEL 1
REF PILOT
f1
f2
f3
f4
SEL 2
TS A
"L"
TS B
"L"
SEL 16k/$\overline{\text{47k}}$
"L"

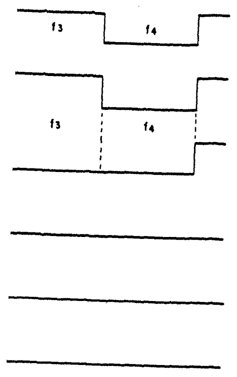
TIMING CHART 2 (PB)


RF SW PULSE
f1
f2
f3
f4
SEL 1
f1 f4 f1
f2 f1 f2
f3 f2 f3
f4 f3 f4
SEL 2
TS A
TS B
SEL 16k/$\overline{\text{47k}}$

TIMING CHART 3 (PB, PAUSE)


RF SW PULSE
f1/f3
f1/f3
f1/f3
f1/f3
SEL 1
"H"
f1/f3
f1/f3
f1/f3
f1/f3
SEL 2
"H/L"
"H/L"
"H/L"
"H/L"
TS A
"L"
TS B
SEL 16k/$\overline{\text{47k}}$
"H"

]



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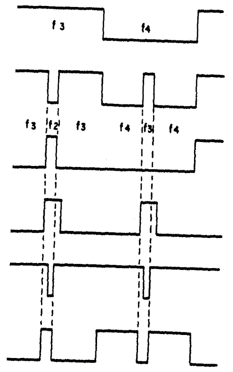
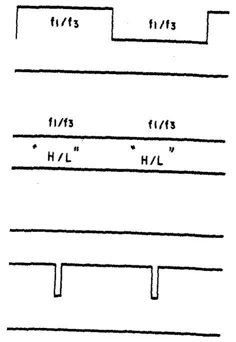
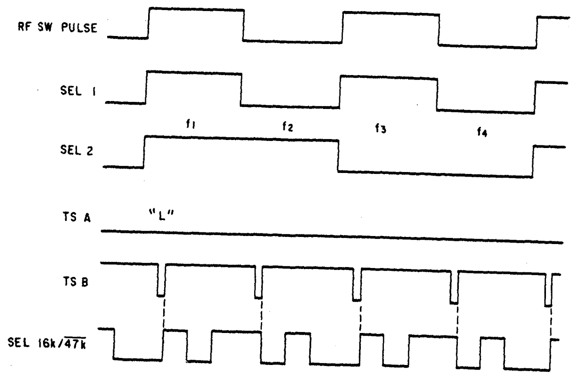


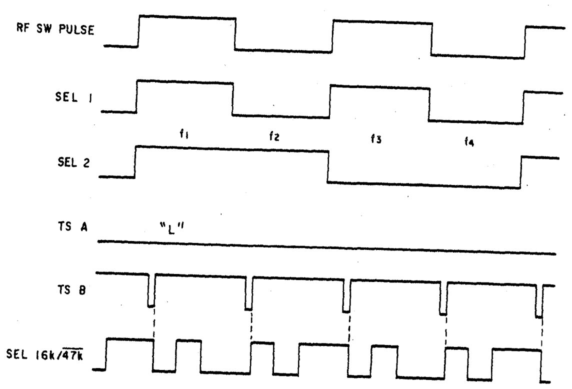
.USE)



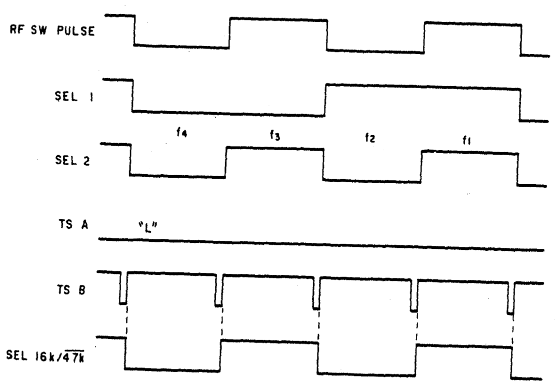
TIMING CHART 4 (CUE)



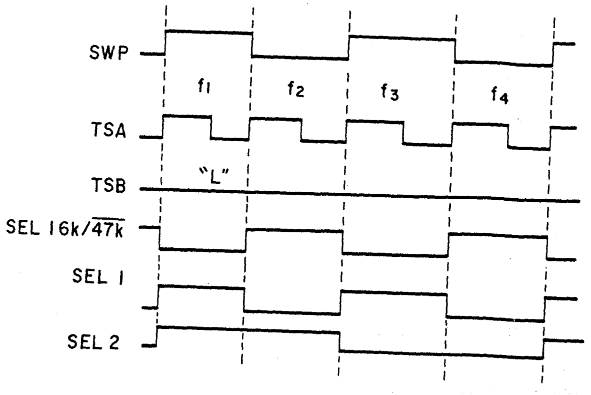
TIMING CHART 5 (REVIEW)



TIMING CHART 6 (REVERSE)



TIMING CHART 7 (DUB)



3-14. CAMERA SYSTEM CONTROL CPU (IC701 ON FC-15 BOARD) — PERIPHERAL CIRCUIT INTERFACE

Signal name	I/O	PIN No.	Input/Output level
WR	O	②	"H" when the colour setting of wiper is at white, red, violet or yellow.
RESET	I	③	Normally "L". "H" pulse is input when the lithium battery is mounted or when the power supply turns on without the lithium battery.
CL1	I	⑤	System clock oscillation pin (it oscillates only during the period the S/S 5V is at ON. Oscillation frequency : approx. 330 kHz)
CL2	O	⑨	
DDS CS	I	⑩	A communication request signal ("H" pulse of V cycle) from the mode control CPU (IC152 on SS-83 board).
POWER DOWN	I	⑪	"L" when the power supply (S/S 5V) of VTR section is at ON.
$\overline{\text{SCK}}$	I/O	⑫	Communication serial data transfer clock input/output ("L" pulse train of V cycle) with mode control CPU and character generator (IC802/IC806 on CG-2 board).
SO	O	⑮	Serial data output ("H" pulse train of V cycle) to mode control CPU and character generator.
SI	I	⑯	Input ("H" pulse train of V cycle) from mode control CPU and character generator.
LI DWN	I	⑰	Detection input of lithium battery down. "H" when battery is down.
$\overline{\text{CAM DWN}}$	I	⑱	"H" when the power supply (F5V) of camera section is at on.
TEST	I	⑲	Pull-up to "H" level. TEST mode when at "L".
BUS ON	O	⑳	Communication selection signal of mode control CPU and communication character generator ("H" level during communication with mode control CPU. Communication cycle is V cycle.)
STB1	O	㉑	Strobe signal for EVF character generator (IC803 on CG-2 board) ("H" pulse output of approximately V cycle).
STB2	O	㉒	Strobe signal for video output character generator (IC803 on CG-2 board) ("H" pulse output of 4V cycle)
ZOOM TELE	O	㉓	"H" when the zoom ring is turned to TELE side.
ZOOM WIDE	O	㉔	"H" when the zoom ring is turned to WIDE side.
$\overline{\text{INT.REC LED}}$	O	㉕	"L" during INTERVAL REC mode.
FD/$\overline{\text{WIPER}}$	O	㉖	Selection output of fader mode and wiper mode ("H" during fader mode)
MD4	O	㉘	Key matrix scanning output ("L" pulse of 4V cycles)
MD5	O	㉚	
X1	I	㉜	Timer clock oscillating pin (Oscillates regularly when the lithium battery is mounted. Oscillation frequency is approx. 32.8 kHz.)
X2	O	㉞	
$\overline{\text{MD0}}$	O	㊱	Key matrix scanning output ("L" pulse of 4V cycles)
$\overline{\text{MD1}}$	O	㊲	
$\overline{\text{MD2}}$	O	㊳	
$\overline{\text{MD3}}$	O	㊴	
MI0	I	㊶	Key matrix scanning input
MI1	I	㊷	
MI2	I	㊸	
MI3	I	㊹	
FD0	O	㊻	Normally "L" level. "H" pulse output during operating of fader or wiper.
FD1	O	㊼	
FD2	O	㊽	
FD3	O	㊾	
FD4	O	㊿	
WB	O	(51)	"H" when the colour setting of wiper is at white, blue, cyan or violet.
WG	O	(52)	"H" when the colour setting of wiper is at white, green, cyan or yellow.

3-15. SYSTEM CONTROL — PCM/AFM AUDIO BLOCK INTERFACE

Signal name	I/O	PIN No.	STOP	FF	REW	CUE	REVIEW	PB	PB・PAUSE	FRAME	REC	REC・PAUSE	REVERSE	AUDIO DUB	AUDIO DUB PAUSE	INSERT	INSERT PAUSE
MIX 1	O	PC-32 BOARD IC016①	*1	*1	*1	*2	*2	*3	*2	*2	*1	*1	*1	*3	*3	*2	*2
MIX 2	O	PC-32 BOARD IC016②															
ME/$\overline{\text{MP}}$	O	PC-32 BOARD IC016③	"L" When MP type tape is used.														
VA PB MODE	O	PC-32 BOARD IC016④	L	L	L	H	H	H	H	H	L	L	H	H	H	L	L
CAM/$\overline{\text{LINE}}$	O	PC-32 BOARD IC016⑤	"H" when camera block power supply is ON.														
S/S	O	PC-32 BOARD IC016⑥	Control signal of IC012 (CX20176) signal system power supply. Normally "L", "H" only when the power is being turned OF														
C/C	O	PC-32 BOARD IC016⑦	Charge control signal of IC012 (CX20176) signal input terminal capacitor. Normally "H"														
PCM PB MODE	O	PC-32 BOARD IC016⑧	L	L	L	H	H	H	H	H	L	L	L	L	L	L	L
A DUB LED	O	PC-32 BOARD IC016⑪	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L
A MUTE	O	PC-32 BOARD IC016⑫	Normally "L". "H" during mode change such as STOP→PB.														
PCM LED	O	PC-32 BOARD IC016⑬	H	H	H	*5	*5	*3	*2	*2	H	H	*5	H	H	H	H
FE RA	O	SS-83 BOARD IC151㊶	L	L	L	L	L	L	L	L	L	L	L	*6	L	L	L
FE RS	O	SS-83 BOARD IC151㊷	L	L	L	L	L	L	L	L	H	L	L	*6	L	H	L
$\overline{\text{CAP ON 2}}$	O	SS-83 BOARD IC151(62)	H	H	H	H	H	H	H	H	H	H	H	L	H	L	H
AF REC	O	SS-83 BOARD IC151(64)	L	L	L	L	L	L	L	L	L	L	L	H	H	L	L
PCM ACT	I	SS-83 BOARD IC152(56)	H	H	H	*4	*4	*4	*4	*4	H	H	*4	H	H	H	H

*1. Dependent upon AUDIO MONITOR SW.
*2. Maintains prior level.
*3. As shown in additional tables (I, II). "L"
*4. Only when PCM audio sigal is not played back.
*5. Dependent upon PVLD.
*6. 30 Hz pulse, only when SP mode.

Additional table I Normal PB

①When PVLD is continuously "H" for more than 42 fields.

AUDIO MONITOR	PCM (AUTO)	MIX	STD
MIX 1	L	L	H
MIX 2	L	H	L
AUDIO MUTE	L	L	L
PCM LED	H	H	H

②Less than 96 field after PVLD changed to "L", but not yet the condition described in ①.

AUDIO MONITOR	PCM (AUTO)	MIX	STD
MIX 1	L	H	H
MIX 2	L	L	L
AUDIO MUTE	H	L	L
PCM LED	H	H	H

③More than 96 fields after PVLD changed to "L", transistional period prior to reaching condition described in ①.

AUDIO MONITOR	PCM (AUTO)	MIX	STD
MIX 1	H	H	H
MIX 2	L	L	L
AUDIO MUTE	L	L	L
PCM LED	L	L	L

*When AUDIO MONITOR SW is set to STD, MIX 1, MIX 2, and AUDIO MUTE do not affect PVLD.

Additional table II E-E

AUDIO MONITOR	PCM (AUTO)	MIX	STD
MIX 1	L	L	H
MIX 2	L	H	L
AUDIO MUTE	L	L	L
PCM LED	H	H	H

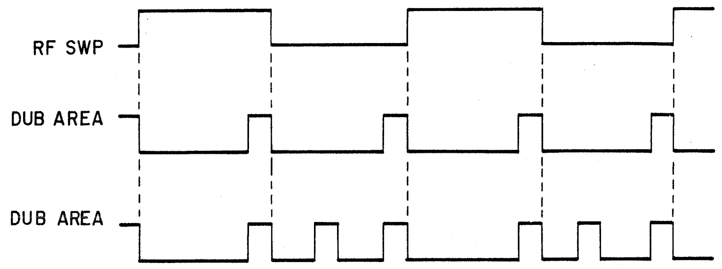
A DUB, A DUB PAUSE

AUDIO MONITOR	PCM (AUTO)	MIX	STD
MIX 1	L	L	L
MIX 2	L	L	L
AUDIO MUTE	L	L	H
PCM LED	H	H	H

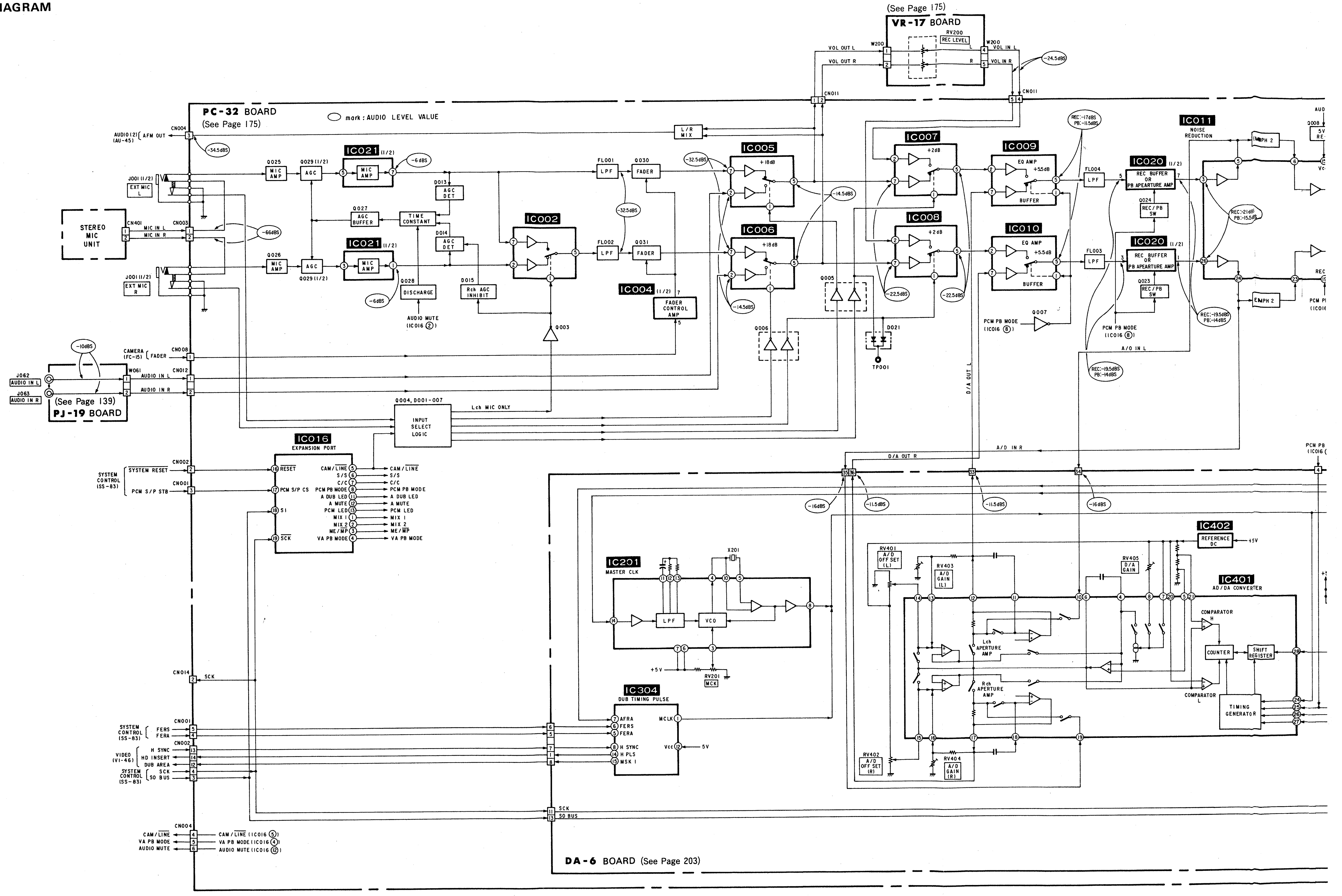
3-16. PCM AUDIO — VIDEO BLOCK INTERFACE

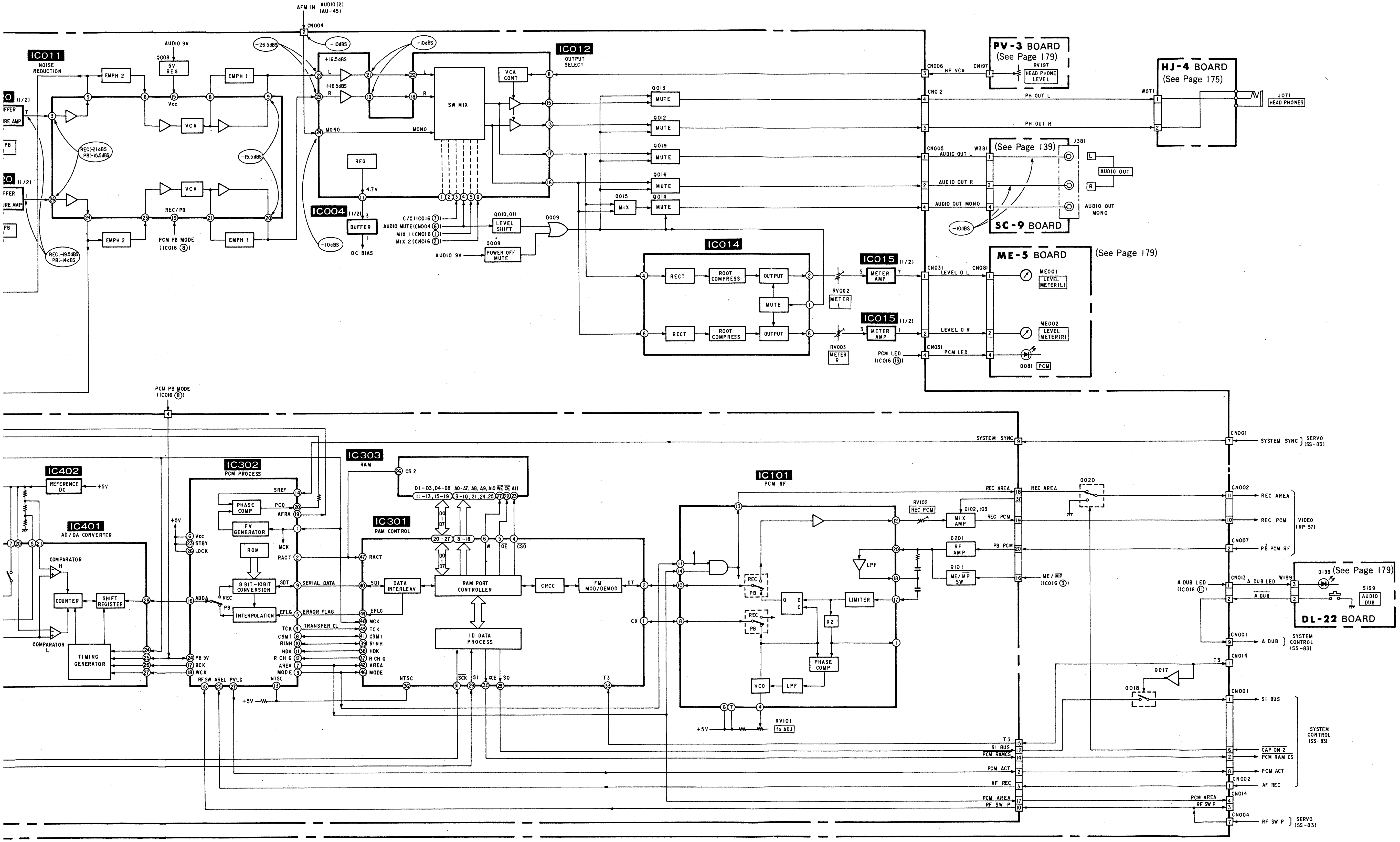
Signal name	I/O	PIN No.	STOP	FF	REW	CUE	REVIEW	PB	PB • PAUSE	FRAME	REC	REC • PAUSE	REVERSE	AUDIO DUB	AUDIO DUB PAUSE	INSERT	INSERT PAUSE
HD INSERT	O	PC-32 BOARD DA-6①	L	L	L	L	L	L	L	L	L	L	L	*1	L	L	L
H SYNC	I	PC-32 BOARD DA-6⑦	"H"pulse of H cycle.														
DUB AREA	O	PC-32 BOARD DA-6⑧	L	L	L	L	L	L	L	L	L	L	L	*3	L	L	L
REC AREA	O	PC-32 BOARD DA-6⑱	L	L	L	L	L	L	L	L	*2	L	L	*2	L	*2	L

*1. HD signal ("H" pulse of H cycle) is output during playback signal masking period (PCM audio signal recordng period.).
*2. "H" pulse of V cycle.
*3. See timing chart.



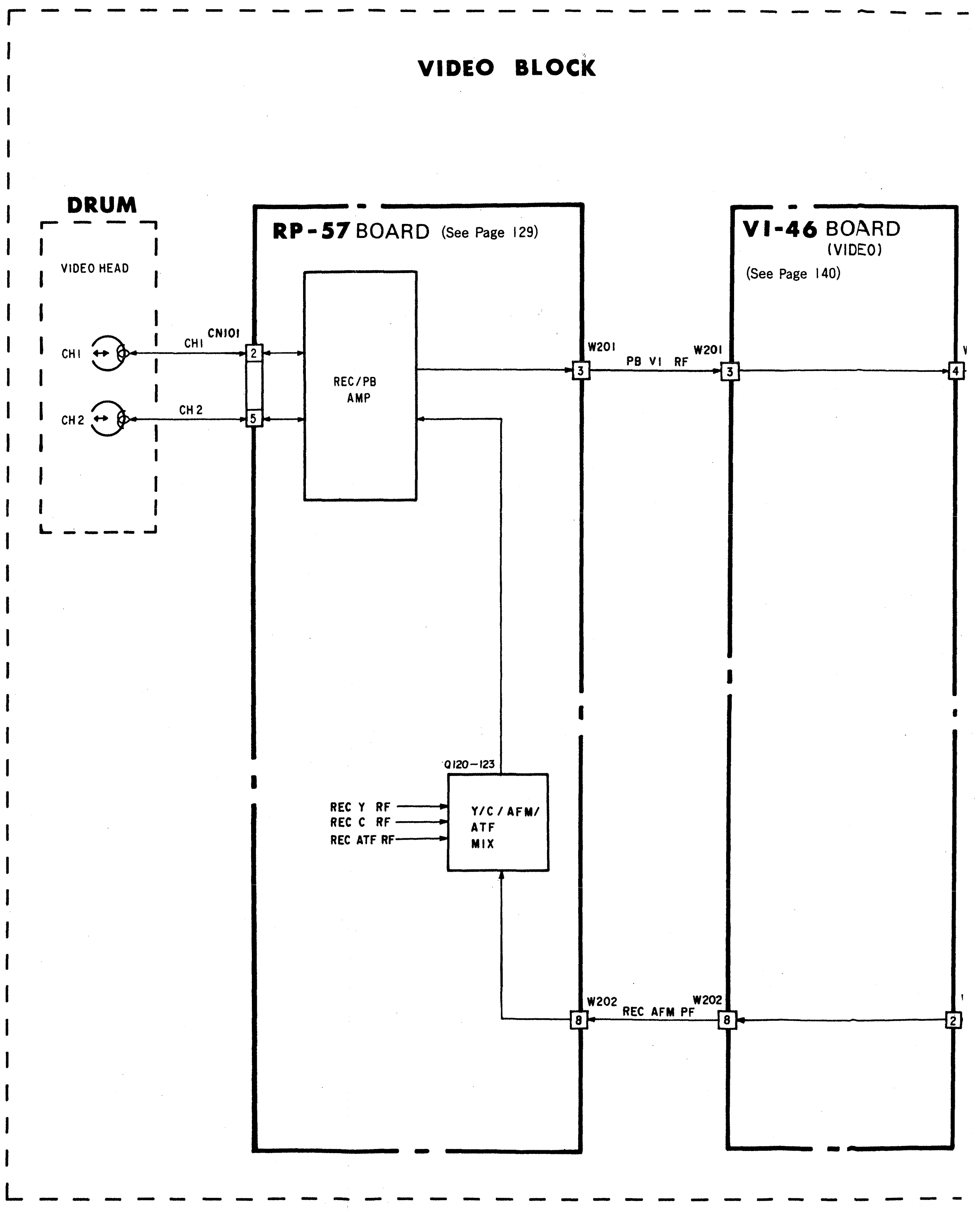
3-17. PCM AUDIO BLOCK DIAGRAM

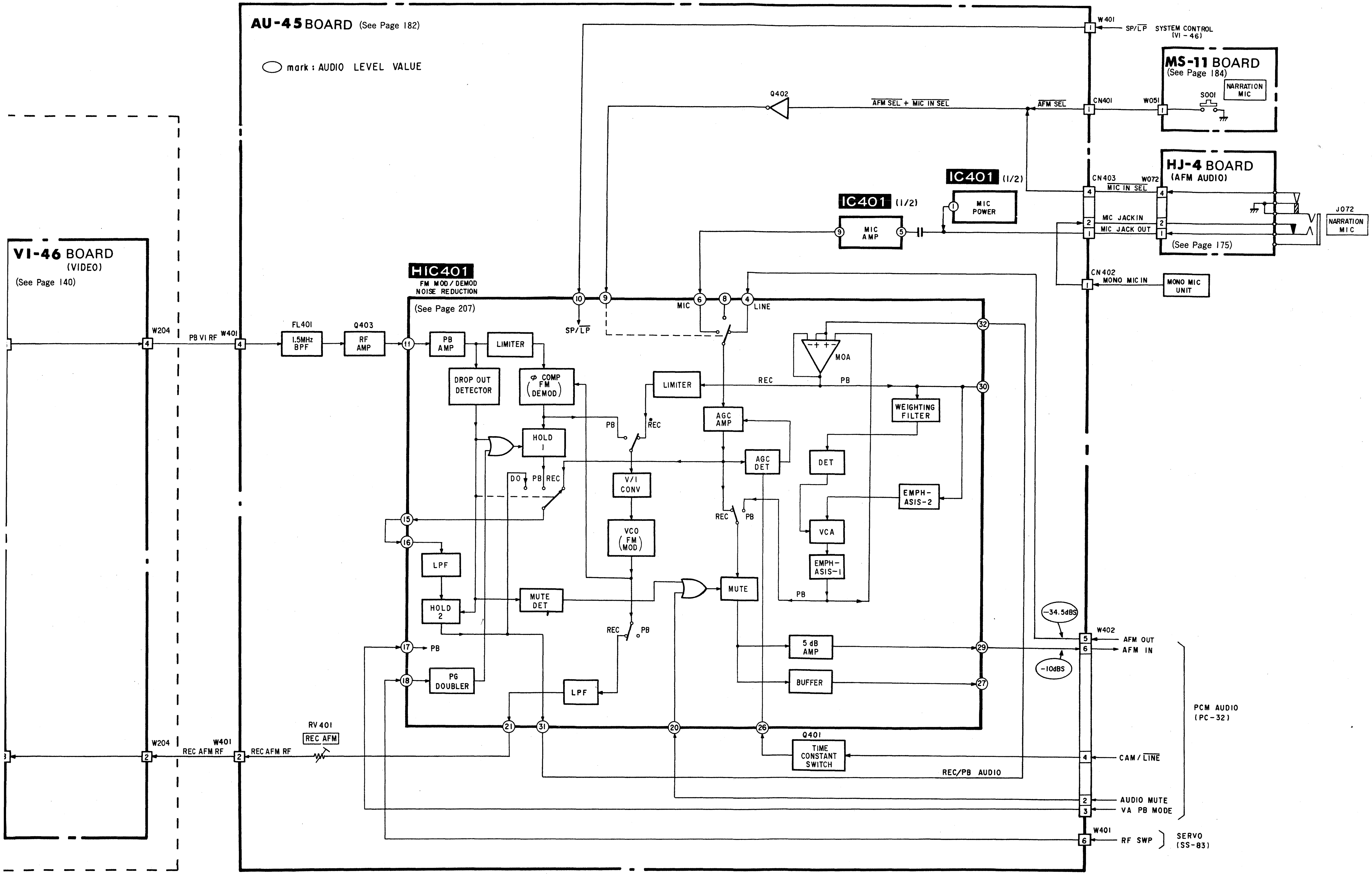

(See Page 175)
VR-17 BOARD
RV200
REC LEVEL
W200
VOL OUT L
VOL OUT R
VOL IN L
VOL IN R
-24.5dBS
CN011
PC-32 BOARD
(See Page 175)
mark : AUDIO LEVEL VALUE
CN004
AUDIO (2) (AU-45)
AFM OUT
-34.5dBS
L/R MIX
J001 (1/2) EXT MIC L
J001 (1/2) EXT MIC R
STEREO MIC UNIT
CN401
CN003
MIC IN L
MIC IN R
-66dBS
Q025 MIC AMP
Q029 (1/2) AGC
IC021 (1/2) MIC AMP
-6dBS
D013 AGC DET
Q027 AGC BUFFER
TIME CONSTANT
D014 AGC DET
Q026 MIC AMP
Q028 DISCHARGE
D015 Rch AGC INHIBIT
AUDIO MUTE (IC016 ⑫)
IC002
Q003
FL001 LPF
FL002 LPF
Q030 FADER
Q031 FADER
-32.5dBS
IC004 (1/2) FADER CONTROL AMP
IC005 +18dB
IC006 +18dB
-14.5dBS
-14dBS
IC007 +2dB
IC008 +2dB
-22.5dBS
Q005
Q006
D021
TP001
IC009 EQ AMP +5.5dB BUFFER
IC010 EQ AMP +5.5dB BUFFER
FL004 LPF
FL003 LPF
Q007
PCM PB MODE (IC016 ⑧)
REC:-17dBS PB:-11.5dBS
IC011 NOISE REDUCTION
IC020 (1/2) REC BUFFER OR PB APEARTURE AMP
Q024 REC/PB SW
Q023 REC/PB SW
REC:-21dBS PB:-15.5dBS
REC:-19.5dBS PB:-14dBS
REC:-19.5dBS PB:-14dBS
A/D IN L
D/A OUT L
EMPH 2
Q008
(-10dBS)
J062 AUDIO IN L
J063 AUDIO IN R
(See Page 139)
PJ-19 BOARD
W061
CN008 CAMERA (FC-15) FADER
CN012 AUDIO IN L
AUDIO IN R
Q004, D001-007
INPUT SELECT LOGIC
Lch MIC ONLY
IC016 EXPANSION PORT
RESET
PCM S/P CS
S1
SCK
CAM/LINE
S/S
C/C
PCM PB MODE
A DUB LED
A MUTE
PCM LED
MIX 1
MIX 2
ME/MP
VA PB MODE
CN002 SYSTEM CONTROL (SS-83) SYSTEM RESET
CN001 PCM S/P STB
D/A OUT R
A/D IN R
-16dBS
-11.5dBS
-11.5dBS
-16dBS
IC402 REFERENCE DC +5V
IC201 MASTER CLK
X201
LPF
VCO
RV201 MCK
RV401 A/D OFF SET (L)
RV403 A/D GAIN (L)
RV405 D/A GAIN
IC401 AD/DA CONVERTER
COMPARATOR H
COUNTER
SHIFT REGISTER
COMPARATOR L
TIMING GENERATOR
Lch APERTURE AMP
Rch APERTURE AMP
RV402 A/D OFF SET (R)
RV404 A/D GAIN (R)
CN014 SCK
IC304 DUB TIMING PULSE
AFRA
FERS
FERA
H SYNC
H PLS
MSK 1
MCLK
Vcc
5V
SYSTEM CONTROL (SS-83) FERS FERA
VIDEO (VI-46) H SYNC HD INSERT DUB AREA
SYSTEM CONTROL (SS-83) SCK SO BUS
SCK
SO BUS
CN004
CAM/LINE
VA PB MODE
AUDIO MUTE
CAM/LINE (IC016 ⑤)
VA PB MODE (IC016 ④)
AUDIO MUTE (IC016 ⑫)
DA-6 BOARD (See Page 203)
PCM PB (IC016



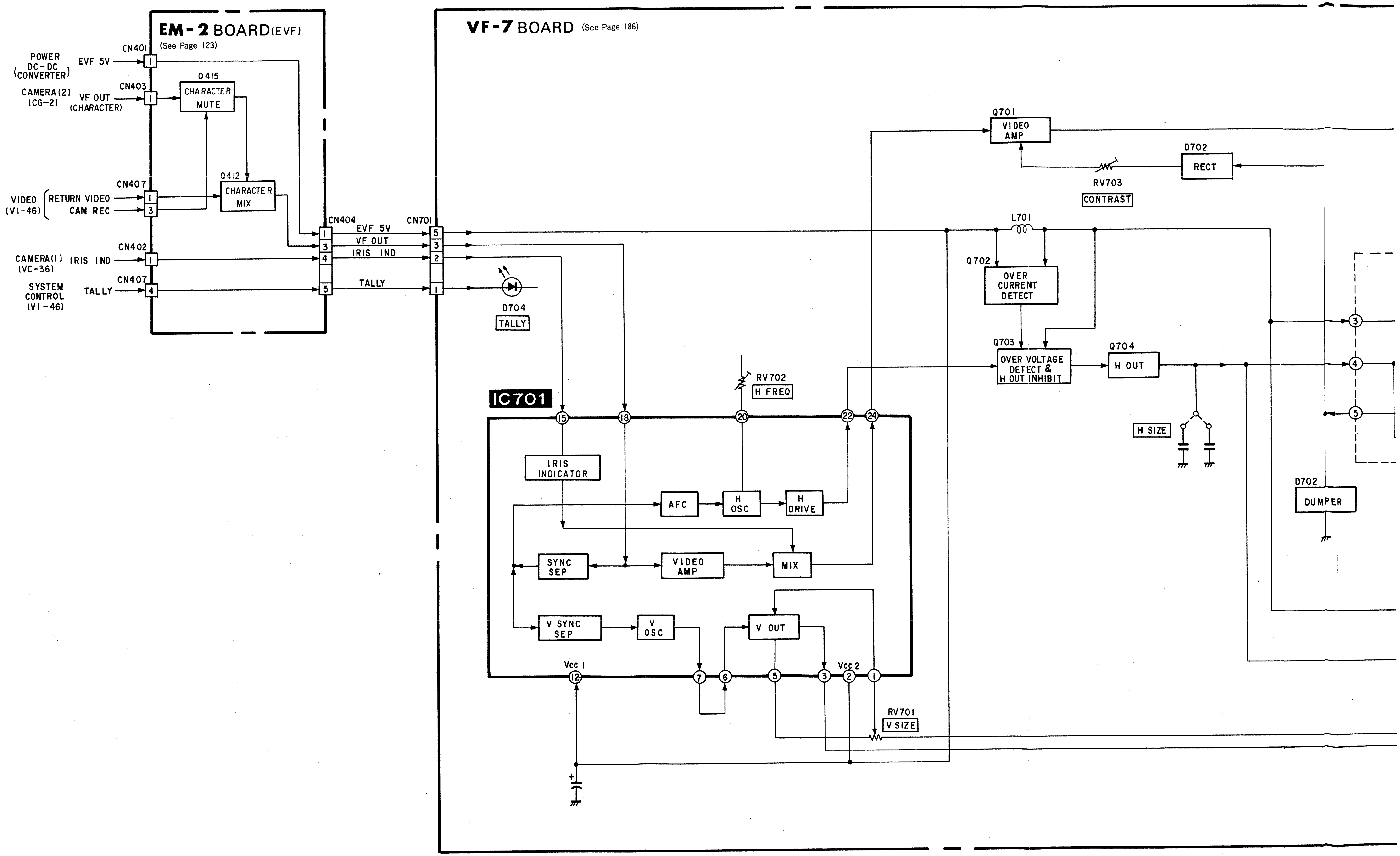
AFM IN
AUDIO(2) (AU-45)
CN004
IC011
NOISE REDUCTION
EMPH 2
AUDIO 9V
Q008
5V REG
Vcc
EMPH 1
VCA
REC:-21dBS PB:-15.5dBS
-15.5dBS
-26.5dBS
-10dBS
REC:-19.5dBS PB:-14dBS
REC/PB
PCM PB MODE (IC016 ⑧)
+16.5dBS
MONO
SW MIX
REG
4.7V
IC004
BUFFER
DC BIAS
IC012
OUTPUT SELECT
VCA CONT
C/C (IC016 ⑦)
AUDIO MUTE (CN004 ⑥)
MIX 1 (CN016 ①)
MIX 2 (CN016 ②)
Q010,011
LEVEL SHIFT
D009
Q009
AUDIO 9V
POWER OFF MUTE
Q013
Q012
Q019
Q016
Q015
Q014
MUTE
MIX
IC014
RECT
ROOT COMPRESS
OUTPUT
IC015
METER AMP
RV002
METER L
RV003
METER R
PCM LED (IC016 ⑬)
CN006
HP VCA
CN197
PV-3 BOARD
(See Page 179)
RV197
HEAD PHONE LEVEL
CN012
PH OUT L
PH OUT R
W071
HJ-4 BOARD
(See Page 175)
J071
HEAD PHONES
CN005
AUDIO OUT L
AUDIO OUT R
AUDIO OUT MONO
W381
(See Page 139)
J381
AUDIO OUT
AUDIO OUT MONO
SC-9 BOARD
CN031
LEVEL O L
LEVEL O R
PCM LED
CN081
ME-5 BOARD
(See Page 179)
ME001
LEVEL METER(L)
ME002
LEVEL METER(R)
D081
PCM
PCM PB MODE (IC016 ⑧)
IC402
REFERENCE DC
+5V
IC401
AD/DA CONVERTER
COMPARATOR H
COMPARATOR L
COUNTER
SHIFT REGISTER
TIMING GENERATOR
IC302
PCM PROCESS
SREF
PHASE COMP
PCO
AFRA
FV GENERATOR
ROM
MCK
RACT
Vcc
STBY
LOCK
ADDA
REC
PB
8 BIT-10BIT CONVERSION
SDT
INTERPOLATION
EFLG
TCK
CSMT
RINH
HDK
R CH G
AREA
MODE
PB 5V
BCK
WCK
RF SW
AREL
PVLD
NTSC
IC303
RAM
CS 2
D1-D3, D4-D8
A0-A7, A8, A9, A10 WE OE A11
IC301
RAM CONTROL
SERIAL DATA
DATA INTERLEAV
ERROR FLAG
TRANSFER CL
RAM PORT CONTROLLER
IO DATA PROCESS
CRCC
FM MOD/DEMOD
DT
CX
SCK
SI
XCE
SO
T3
IC101
PCM RF
LPF
REC
PB
Q
D
C
LIMITER
X2
PHASE COMP
VCO
RV101
fo ADJ
RV102
REC PCM
MIX AMP
Q102,103
Q201
RF AMP
Q101
ME/MP SW
ME/MP (IC016 ③)
SYSTEM SYNC
REC AREA
REC PCM
PB PCM
Q020
CN001
SYSTEM SYNC
SERVO (SS-83)
CN002
REC AREA
REC PCM
VIDEO (RP-57)
CN007
PB PCM RF
A DUB LED (IC016 ⑪)
CN013
A DUB LED
A DUB
W199
D199
(See Page 179)
S199
AUDIO DUB
DL-22 BOARD
A DUB
SYSTEM CONTROL (SS-83)
CN014
Q017
Q018
SI BUS
T3
PCM RAMCS
PCM ACT
AF REC
PCM AREA
RF SW P
CAP ON 2
PCM RAM CS
SYSTEM CONTROL (SS-83)
CN004
RF SW P
SERVO (SS-83)

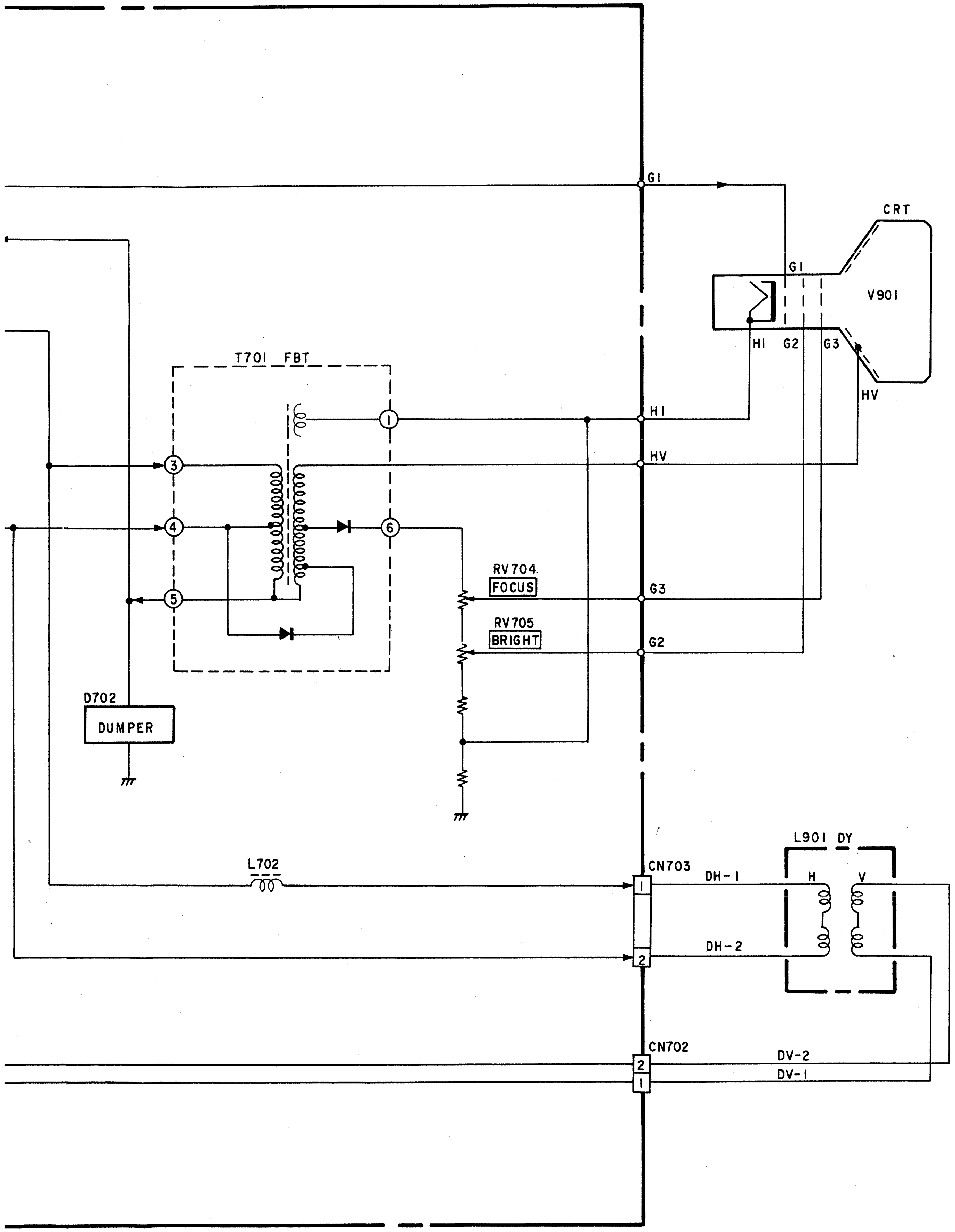
3-18. AFM AUDIO BLOCK DIAGRAM


VIDEO BLOCK
DRUM
VIDEO HEAD
CH1
CH2
CN101
CH1
CH2
2
5
RP-57 BOARD (See Page 129)
REC/PB AMP
W201
3
PB VI RF
W201
3
Q120–123
REC Y RF
REC C RF
REC ATF RF
Y/C/AFM/ ATF MIX
W202
8
REC AFM PF
W202
8
VI-46 BOARD (VIDEO)
(See Page 140)
4
2

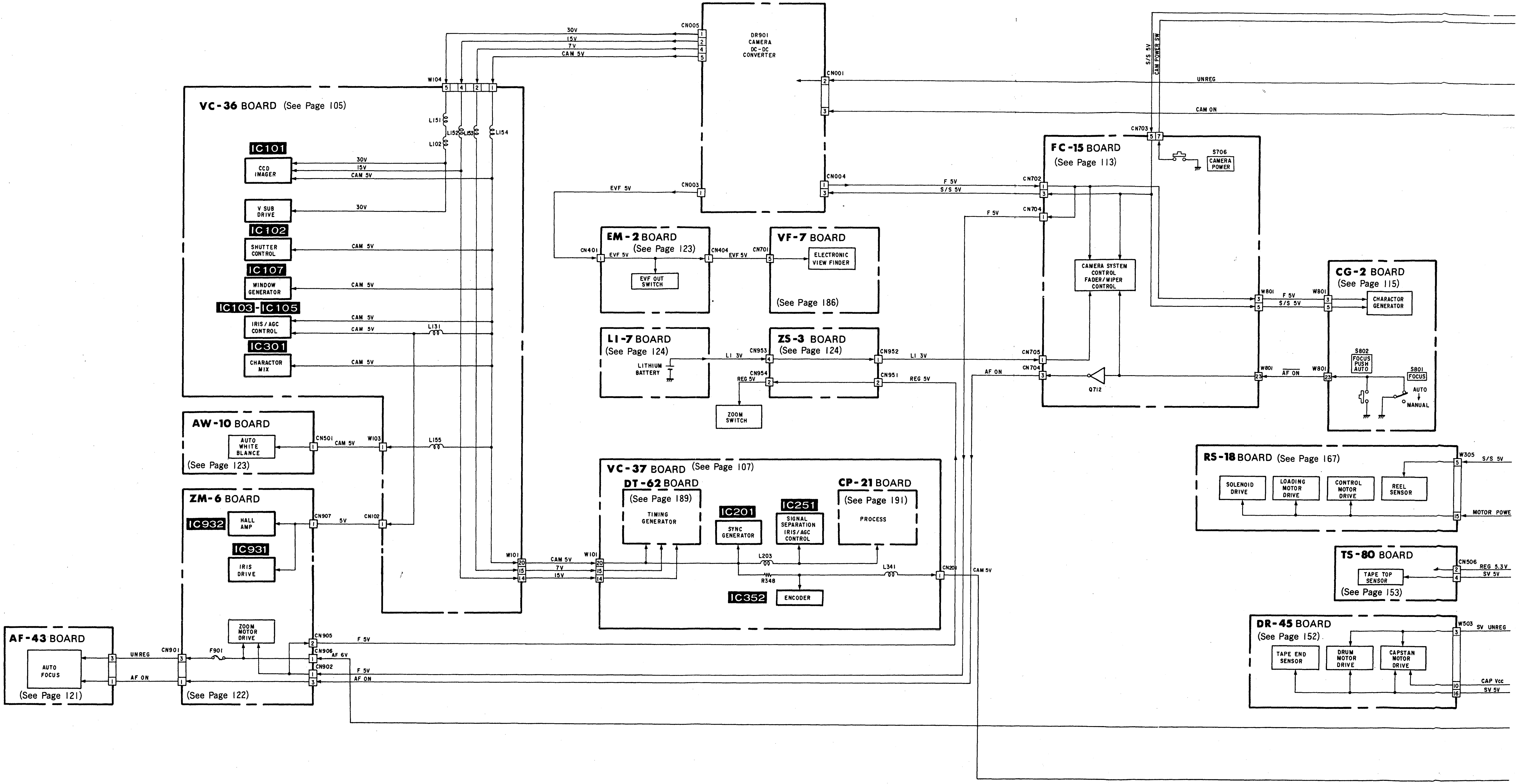

AU-45 BOARD (See Page 182)
mark : AUDIO LEVEL VALUE
VI-46 BOARD
(VIDEO)
(See Page 140)
W204
PB VI RF
W401
FL401
1.5MHz BPF
Q403
RF AMP
HIC401
FM MOD / DEMOD
NOISE REDUCTION
(See Page 207)
PB AMP
LIMITER
DROP OUT DETECTOR
φ COMP (FM DEMOD)
HOLD 1
DO
PB
REC
LPF
HOLD 2
MUTE DET
PG DOUBLER
LPF
V/I CONV
VCO (FM MOD)
LIMITER
AGC AMP
AGC DET
MUTE
5 dB AMP
BUFFER
MOA
WEIGHTING FILTER
DET
EMPH-ASIS-2
VCA
EMPH-ASIS-1
SP/LP
MIC
LINE
REC
PB
Q402
AFM SEL + MIC IN SEL
AFM SEL
IC401 (1/2)
MIC AMP
IC401 (1/2)
MIC POWER
W401
SP/LP SYSTEM CONTROL (VI-46)
MS-11 BOARD
(See Page 184)
S001
NARRATION MIC
CN401
W051
HJ-4 BOARD
(AFM AUDIO)
CN403
W072
MIC IN SEL
MIC JACKIN
MIC JACK OUT
(See Page 175)
J072
NARRATION MIC
CN402
MONO MIC IN
MONO MIC UNIT
-34.5dBS
-10dBS
W402
AFM OUT
AFM IN
PCM AUDIO (PC-32)
CAM/LINE
AUDIO MUTE
VA PB MODE
W401
RF SWP
SERVO (SS-83)
Q401
TIME CONSTANT SWITCH
REC/PB AUDIO
RV401
REC AFM
W204
REC AFM RF
W401
REC AFM RF

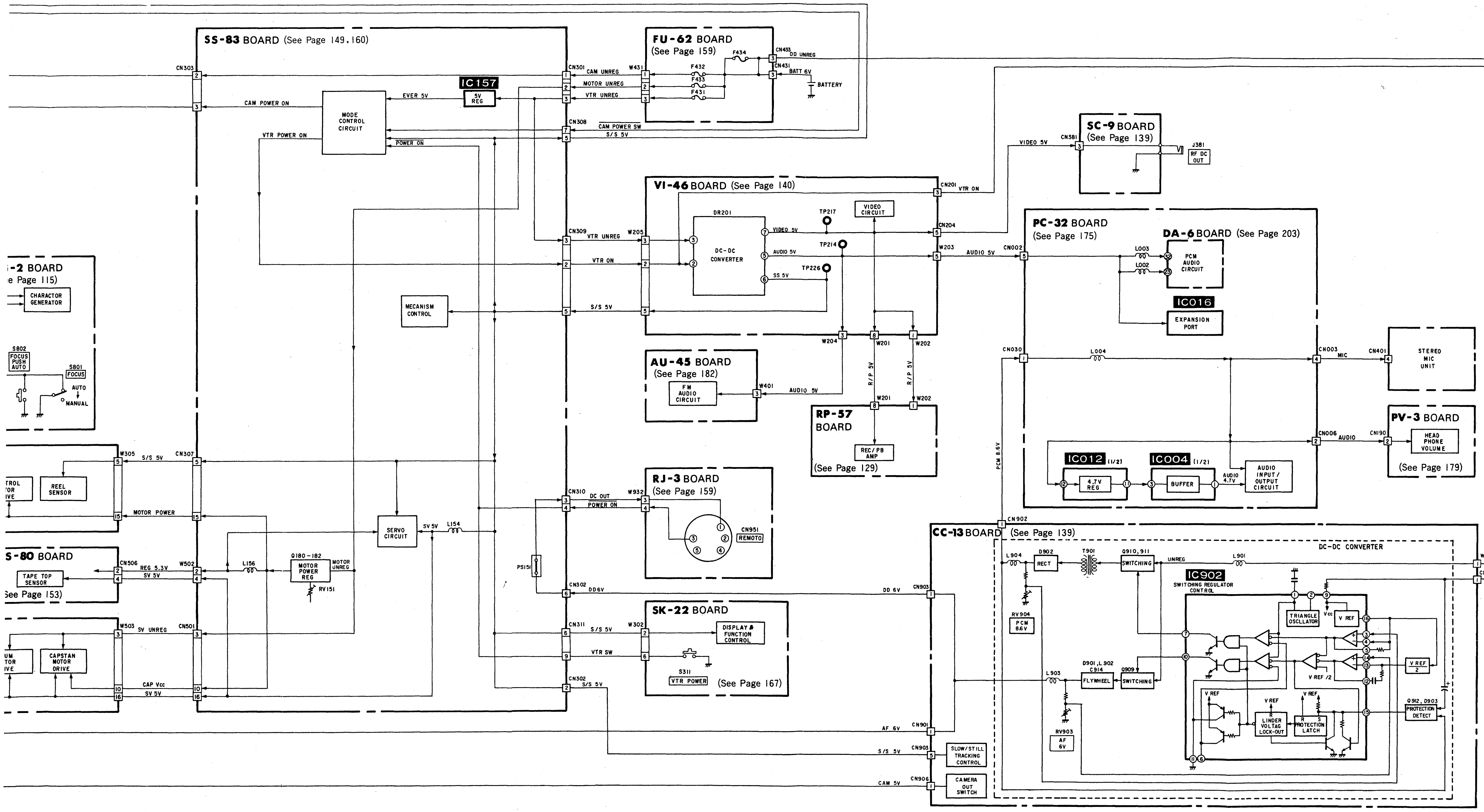
3-19. EVF BLOCK DIAGRAM


EM-2 BOARD(EVF)
(See Page 123)
POWER (DC-DC CONVERTER)
EVF 5V
CN401
CAMERA(2) (CG-2)
VF OUT (CHARACTER)
CN403
Q415
CHARACTER MUTE
VIDEO (VI-46)
RETURN VIDEO
CAM REC
CN407
Q412
CHARACTER MIX
CAMERA(1) (VC-36)
IRIS IND
CN402
SYSTEM CONTROL (VI-46)
TALLY
CN407
CN404
EVF 5V
VF OUT
IRIS IND
TALLY
CN701
VF-7 BOARD (See Page 186)
D704
TALLY
IC701
IRIS INDICATOR
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP
MIX
V SYNC SEP
V OSC
V OUT
Vcc 1
Vcc 2
RV702
H FREQ
RV701
V SIZE
Q701
VIDEO AMP
RV703
CONTRAST
D702
RECT
L701
Q702
OVER CURRENT DETECT
Q703
OVER VOLTAGE DETECT & H OUT INHIBIT
Q704
H OUT
H SIZE
D702
DUMPER


G1
CRT
G1
V901
H1
G2
G3
HV
T701 FBT
1
3
4
5
6
H1
HV
RV704
FOCUS
G3
RV705
BRIGHT
G2
D702
DUMPER
L901 DY
H
V
L702
CN703
1
2
DH-1
DH-2
CN702
2
1
DV-2
DV-1

3-20. POWER BLOCK DIAGRAM

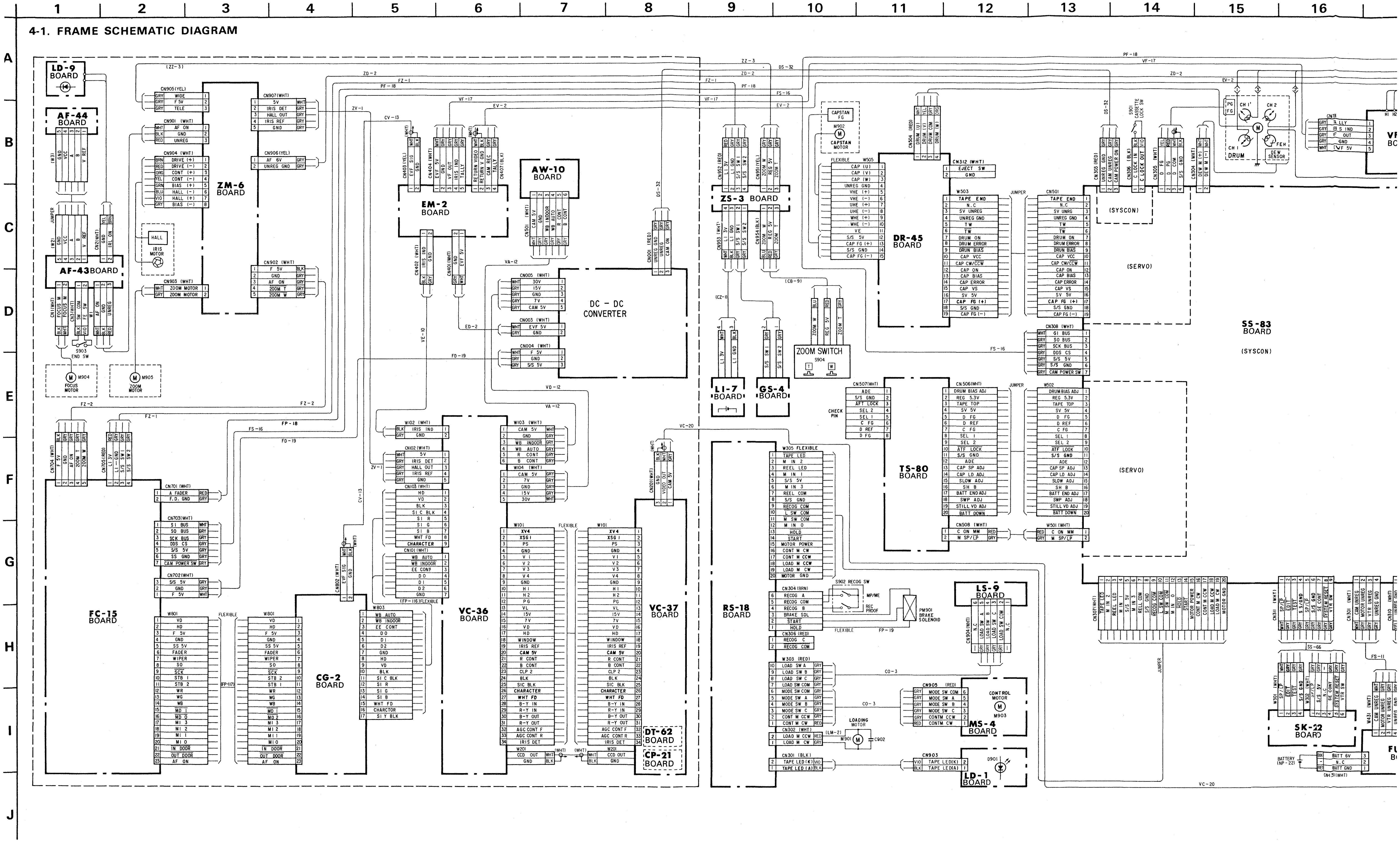

DR901 CAMERA DC-DC CONVERTER
CN005
30V
15V
7V
CAM 5V
CN001
UNREG
CAM ON
CN003
EVF 5V
CN004
F 5V
S/S 5V
S/S 5V
CAM POWER SW
W104
VC-36 BOARD (See Page 105)
L151
L102
L152
L153
L154
IC101
CCD IMAGER
V SUB DRIVE
IC102
SHUTTER CONTROL
IC107
WINDOW GENERATOR
IC103-IC105
IRIS/AGC CONTROL
L131
IC301
CHARACTOR MIX
AW-10 BOARD
AUTO WHITE BLANCE
(See Page 123)
CN501
W103
L155
ZM-6 BOARD
IC932
HALL AMP
IC931
IRIS DRIVE
CN907
5V
CN102
ZOOM MOTOR DRIVE
CN905
CN906
AF 6V
CN902
F 5V
AF ON
F901
CN901
(See Page 122)
AF-43 BOARD
AUTO FOCUS
(See Page 121)
UNREG
AF ON
EM-2 BOARD (See Page 123)
CN401
EVF OUT SWITCH
CN404
VF-7 BOARD
CN701
ELECTRONIC VIEW FINDER
(See Page 186)
LI-7 BOARD
(See Page 124)
LITHIUM BATTERY
LI 3V
ZS-3 BOARD
(See Page 124)
CN953
CN954
REG 5V
CN952
CN951
ZOOM SWITCH
VC-37 BOARD (See Page 107)
DT-62 BOARD
(See Page 189)
TIMING GENERATOR
IC201
SYNC GENERATOR
IC251
SIGNAL SEPARATION IRIS/AGC CONTROL
CP-21 BOARD
(See Page 191)
PROCESS
W101
CAM 5V
7V
15V
L203
R348
L341
CN201
IC352
ENCODER
FC-15 BOARD
(See Page 113)
CN703
CN702
CN704
CN705
S706
CAMERA POWER
CAMERA SYSTEM CONTROL FADER/WIPER CONTROL
Q712
W801
AF ON
CG-2 BOARD
(See Page 115)
CHARACTOR GENERATOR
S802
FOCUS PUSH AUTO
S801
FOCUS
AUTO
MANUAL
RS-18 BOARD (See Page 167)
SOLENOID DRIVE
LOADING MOTOR DRIVE
CONTROL MOTOR DRIVE
REEL SENSOR
W305
S/S 5V
MOTOR POWE
TS-80 BOARD
TAPE TOP SENSOR
(See Page 153)
CN506
REG 5.3V
SV 5V
DR-45 BOARD
(See Page 152)
TAPE END SENSOR
DRUM MOTOR DRIVE
CAPSTAN MOTOR DRIVE
W503
SV UNREG
CAP Vcc
SV 5V

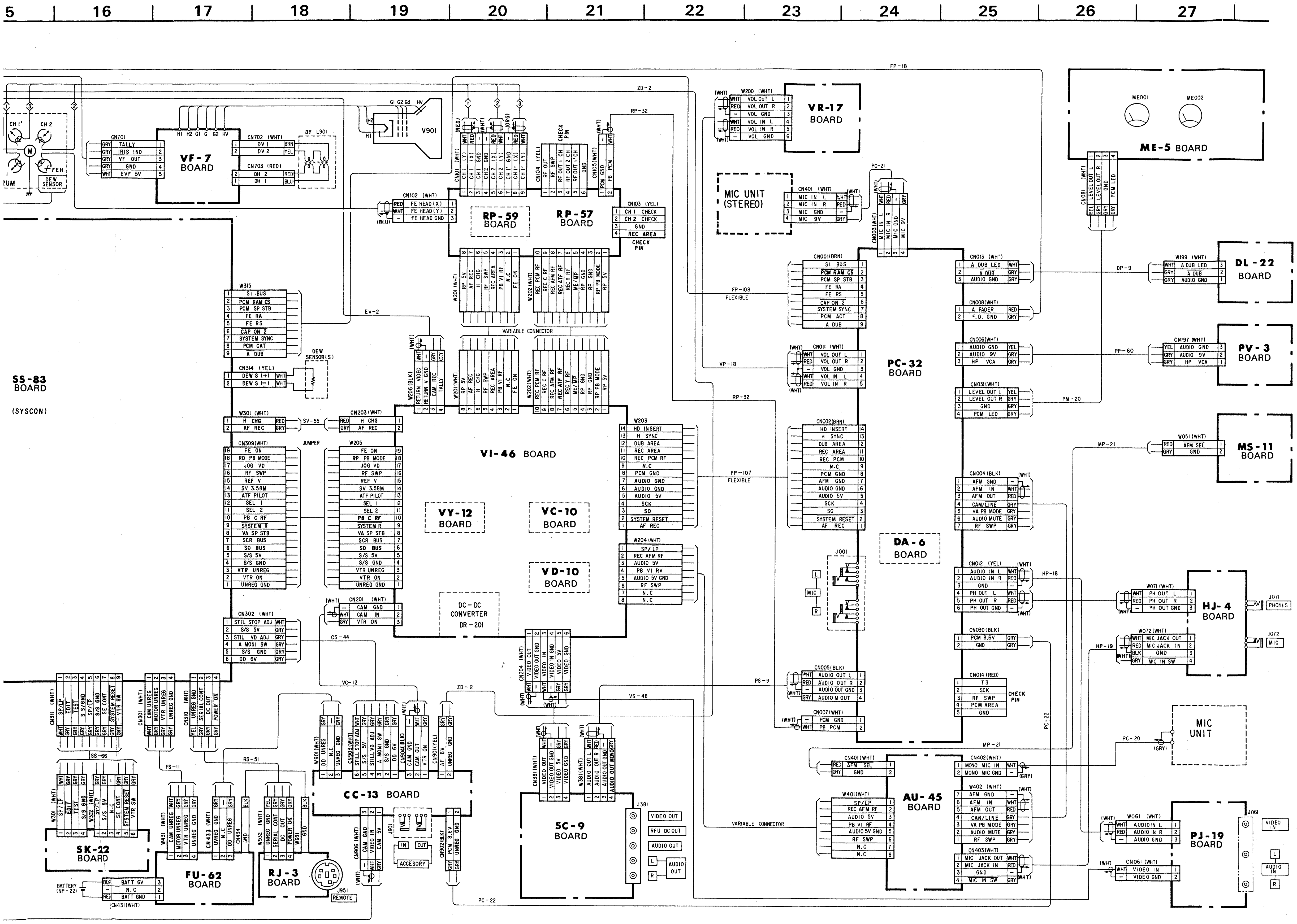

SS-83 BOARD (See Page 149.160)
CN303
CAM POWER ON
VTR POWER ON
MODE CONTROL CIRCUIT
EVER 5V
IC157
5V REG
POWER ON
CN301
CAM UNREG
MOTOR UNREG
VTR UNREG
CN308
CAM POWER SW
S/S 5V
FU-62 BOARD (See Page 159)
W431
F432
F433
F431
F434
CN433
DD UNREG
CN431
BATT 6V
BATTERY
SC-9 BOARD (See Page 139)
CN381
VIDEO 5V
J381
RF DC OUT
VI-46 BOARD (See Page 140)
CN201
VTR ON
DR201
DC-DC CONVERTER
VIDEO 5V
AUDIO 5V
SS 5V
TP217
TP214
TP226
VIDEO CIRCUIT
CN204
W203
CN309
VTR UNREG
W205
VTR ON
S/S 5V
MECANISM CONTROL
W204
W201
W202
R/P 5V
PC-32 BOARD (See Page 175)
DA-6 BOARD (See Page 203)
CN002
AUDIO 5V
L003
L002
PCM AUDIO CIRCUIT
IC016
EXPANSION PORT
CN030
L004
CN003
MIC
CN401
STEREO MIC UNIT
CN006
AUDIO
CN190
PV-3 BOARD
HEAD PHONE VOLUME
(See Page 179)
IC012 (1/2)
4.7V REG
IC004 (1/2)
BUFFER
AUDIO 4.7V
AUDIO INPUT/OUTPUT CIRCUIT
PCM 8.6V
AU-45 BOARD (See Page 182)
FM AUDIO CIRCUIT
W401
AUDIO 5V
RP-57 BOARD
REC/PB AMP
(See Page 129)
-2 BOARD
e Page 115)
CHARACTOR GENERATOR
S802
FOCUS PUSH AUTO
S801
FOCUS
AUTO
MANUAL
W305
S/S 5V
CN307
TROL
TOR
IVE
REEL SENSOR
MOTOR POWER
SERVO CIRCUIT
SV 5V
L154
CN310
DC OUT
POWER ON
W932
RJ-3 BOARD (See Page 159)
CN951
REMOTO
PS151
S-80 BOARD
CN506
REG 5.3V
SV 5V
W502
TAPE TOP SENSOR
See Page 153)
L156
Q180-182
MOTOR POWER REG
MOTOR UNREG
RV151
CN302
DD6V
W503
SV UNREG
CN501
UM
TOR
IVE
CAPSTAN MOTOR DRIVE
CAP Vcc
SV 5V
CN311
S/S 5V
W302
VTR SW
SK-22 BOARD
DISPLAY & FUNCTION CONTROL
S311
VTR POWER
(See Page 167)
CN302
S/S 5V
CN902
CC-13 BOARD (See Page 139)
DC-DC CONVERTER
L904
D902
RECT
T901
Q910, 911
SWITCHING
UNREG
L901
IC902
SWITCHING REGULATOR CONTROL
TRIANGLE OSCLLATOR
Vcc
V REF
RV904
PCM 8.6V
D901, L902
C914
Q909
L903
FLYWHEEL
SWITCHING
V REF/2
V REF 2
V REF
LINDER VOLTAG LOCK-OUT
R S
PROTECTION LATCH
Q912, Q903
PROTECTION DETECT
RV903
AF 6V
W901
DD UNREG
CN904
VTR ON
DD 6V
CN903
AF 6V
CN901
S/S 5V
CN905
SLOW/STILL TRACKING CONTROL
CAM 5V
CN906
CAMERA OUT SWITCH

SECTION 4

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


LD-9 BOARD
AF-44 BOARD
AF-43 BOARD
ZM-6 BOARD
EM-2 BOARD
AW-10 BOARD
DC - DC CONVERTER
ZS-3 BOARD
DR-45 BOARD
SS-83 BOARD
(SYSCON)
(SERVO)
LI-7 BOARD
GS-4 BOARD
ZOOM SWITCH
TS-80 BOARD
FC-15 BOARD
CG-2 BOARD
VC-36 BOARD
VC-37 BOARD
DT-62 BOARD
CP-21 BOARD
RS-18 BOARD
LS-9 BOARD
MS-4 BOARD
LD-1 BOARD
SK-22 BOARD
FOCUS MOTOR
ZOOM MOTOR
IRIS MOTOR
CAPSTAN MOTOR
DRUM
DEW SENSOR
CONTROL MOTOR
LOADING MOTOR
BRAKE SOLENOID


5
16
17
18
19
20
21
22
23
24
25
26
27
SS-83 BOARD (SYSCON)
VF-7 BOARD
RP-59 BOARD
RP-57 BOARD
VR-17 BOARD
MIC UNIT (STEREO)
ME-5 BOARD
PC-32 BOARD
DL-22 BOARD
PV-3 BOARD
MS-11 BOARD
VI-46 BOARD
VY-12 BOARD
VC-10 BOARD
VD-10 BOARD
DC-DC CONVERTER DR-201
DA-6 BOARD
HJ-4 BOARD
MIC UNIT
AU-45 BOARD
PJ-19 BOARD
SK-22 BOARD
FU-62 BOARD
RJ-3 BOARD
CC-13 BOARD
SC-9 BOARD
DEW SENSOR
DEW SENSOR(S)
V901
FP-18
ZD-2
RP-32
EV-2
FP-108 FLEXIBLE
VP-18
FP-107 FLEXIBLE
VARIABLE CONNECTOR
CS-44
VC-12
ZD-2
VS-48
PS-9
SS-66
FS-11
RS-51
PC-22
DP-9
PP-60
PM-20
MP-21
HP-18
HP-19
PC-20
PC-21
BATTERY (NP-22)
J951 REMOTE
ACCESORY
VIDEO OUT
RFU DC OUT
AUDIO OUT
PHONES
MIC
VIDEO IN
AUDIO IN
CHECK PIN

PRECAUTIONS FOR REPLACEMENT OF CCD IMAGER BLOCK

- With a pair of IC101 (CCD imager) on the VC-36 complate board and IC002 (corrector ROM) on the DT-62 complete board, it is used a repair part of the CCD imager block.
  Since corrector ROM IC is manufactured to match the CCD imager, replacement of a single unit of the CCD imager corrector ROM cannot be allowed.
- When both a CCD imager and the corrector ROM replace both the CCD imager and the corrector ROM, when a corrector ROM is not mounted on the service set, install a corrector ROM which is supplied anew.
- IC101 (CCD imager) is not mounted on the VC-36 complete board to be supplied as a repair part and IC002 (corrector ROM) is not mounted on the DT-62 complete board to be supplied as a repair part. When the respective boards are replaced, remove the respective ICs from the old boards and install them to the new ones respectively.
- After the CCD imager block has been replaced, perform the entire adjustments of the camera section.
- CCD imager is structurally in case of being broken down by static electricity. For this reason, take care to handle it as well as MOS IC. Moreover, care should be taken for dust not to be stuck on the light reseiving section and for strong light not to get into there.

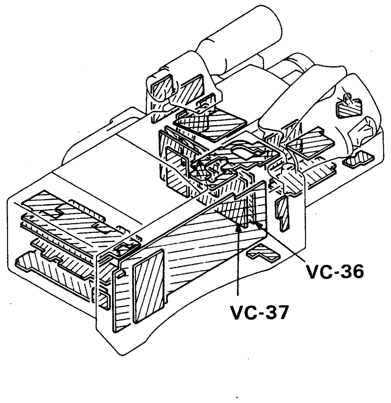
4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

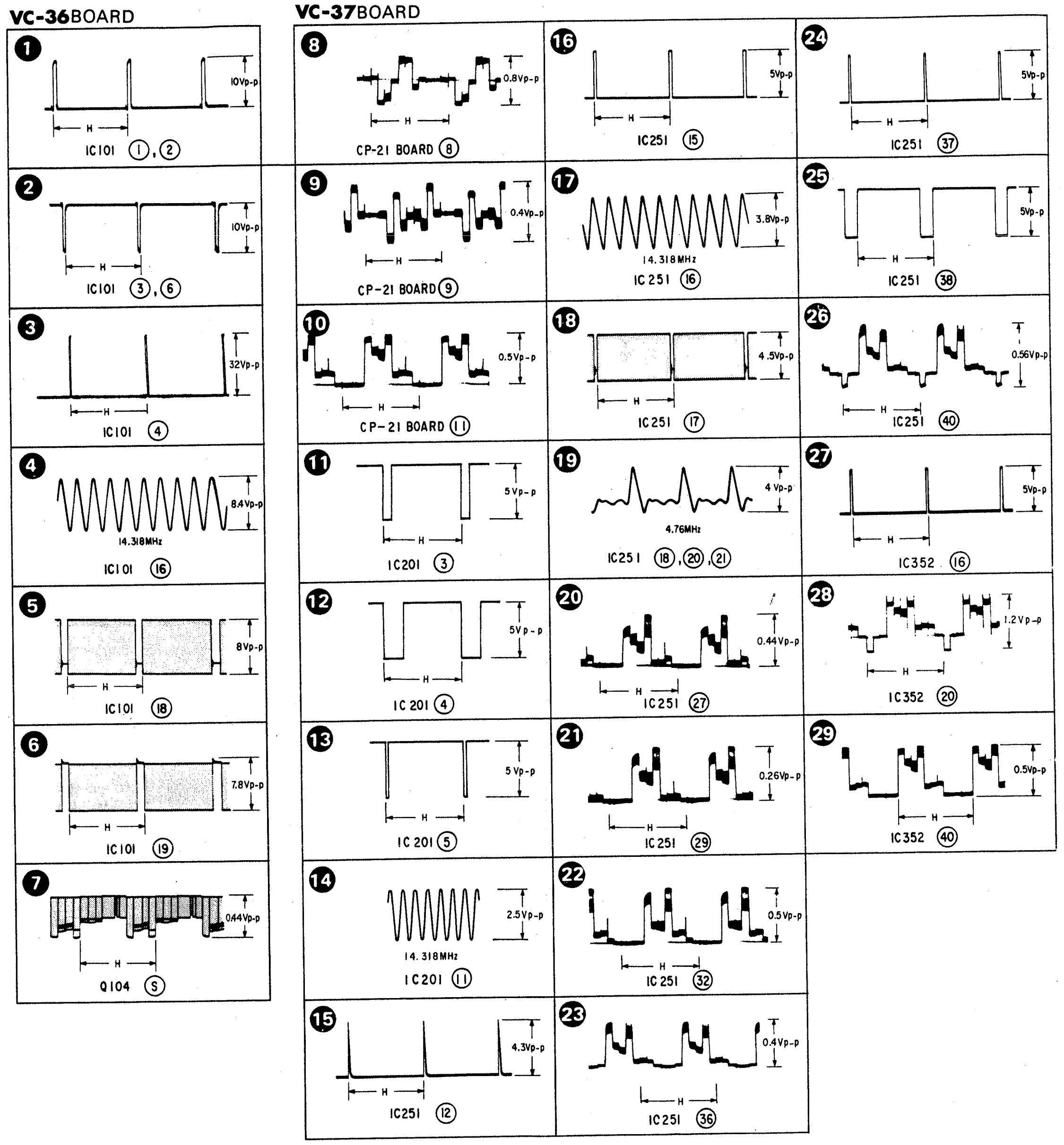
Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▒ : Pattern of the rear side.

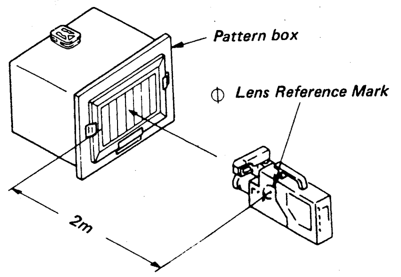
> Note
>
> Conductor side: Parts on the conductor side being seen from the conductor are stated.
>
> Component side: Parts on the component side being seen from the component are stated.
>
> Regarding color indication of pattern
>
> * Pattern being seen in the state from the surface side are indicated in gray pattern.
>
> * Pattern being seen in the state of the rear surface side is indicated in green pattern.

- The ● number is the reference number in the waveform diagram.
- Digital transistor (VC-36: Q110, 143) transistor with resistors. Refer to the VC-36 board schematic diagrams for digital transistor.





1. Connection



2. Adjust the distance so that the output w form of Fig. a and the Fig. b can be obtain.

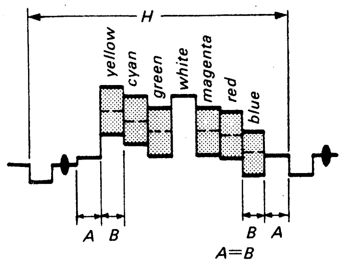


Fig. a Camera output waveform of TP345 on VC-37 board.

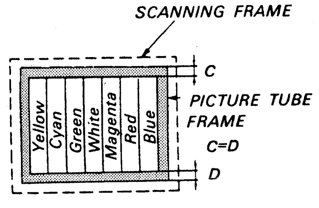


Fig. b Picture of TV monitor screen

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components. Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel disignation.
- ▭ : adjustment for repair.
- ▬ : B + line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) Voltage are DC between ground and measurement point. (The tester used is the digital multimeter DC10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).
- The ● number is the reference number in the waveform diagram.

> When indicating parts by reference number, please include the board name.

VC-36 (SHUTTER CONTROL, CCD IMAGER, AGC/IRIS MEMORY), VC-37 (AGC/IRIS CONTR

— Ref. No. VC-36, VC-37 BOARDS: 1000 series —

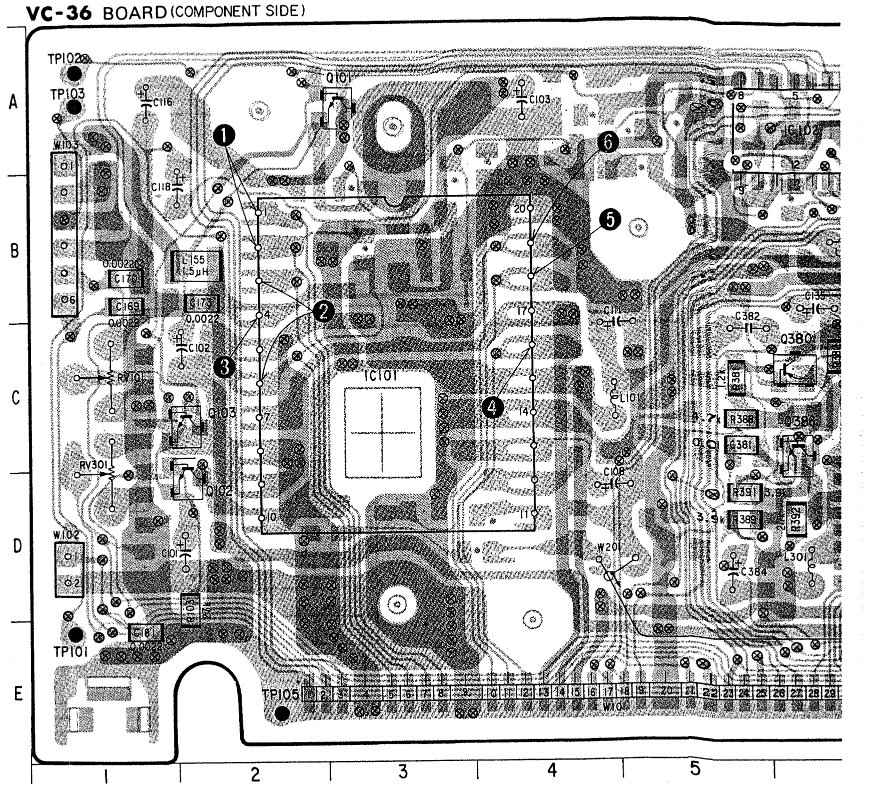
VC-36 BOARD

CN101	A-8
CN102	E-9
CN103	A-10
D101	B-21
D102	B-22
D103	A-20
D104	A-20
D105	A-18
D106	B-18
D131	E-14
D132	D-16
D133	D-15
IC101	C-3
IC102	A-6
IC103	D-9
IC104	C-15
IC105	C-8
IC301	D-6
Q101	A-3
Q102	D-2
Q103	C-2
Q104	D-20
Q105	A-19
Q106	A-19
Q107	A-21
Q108	B-21
Q110	A-18
Q121	A-14
Q132	B-9
Q133	B-16
Q136	C-17
Q137	C-18
Q138	B-17
Q139	C-7
Q143	B-16
Q144	C-16
Q301	D-17
Q302	D-16
Q303	C-17
Q304	C-17
Q305	C-7
Q306	C-7
Q307	D-7
Q308	D-8
Q380	C-6
Q381	C-18
Q382	D-19
Q383	C-19
Q384	C-19
Q386	C-6
Q387	D-19
RV101	C-1
RV301	C-1
TP101	E-1
TP102	A-1
TP103	A-1
TP104	E-7
TP105	E-2
W101	E-4
W102	D-1
W103	B-1
W104	D-10

VC-37 BOARD

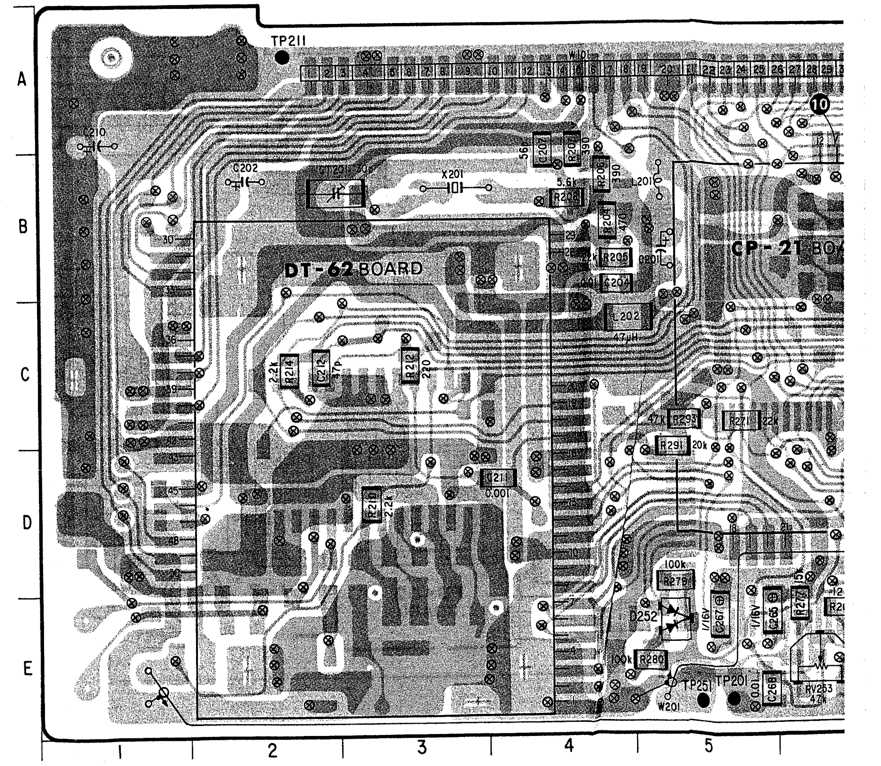
CN201	B-10
CT201	B-2
D251	C-10
D252	E-5
IC201	C-20
IC251	D-17
IC352	D-9
Q201	B-19
Q202	B-19
Q258	C-16
Q259	C-16
Q260	B-16
Q261	B-16
Q263	B-17
Q342	E-9
Q348	B-13
Q349	D-13
Q350	D-13
Q351	B-9
Q352	B-9
Q353	B-14
RV252	E-6
RV253	E-6
RV254	B-8
RV255	B-8
RV341	C-10
RV342	D-10
RV343	D-10
RV344	E-10
RV345	E-10
RV347	D-10
TP201	E-5
TP210	A-7
TP211	A-2
TP251	E-5
TP252	A-8
TP253	A-8
TP254	A-8
TP341	A-9
TP342	A-8
TP343	B-10
TP344	A-10
TP345	B-10
W101	A-4

VC-36 BOARD (COMPONENT SIDE)

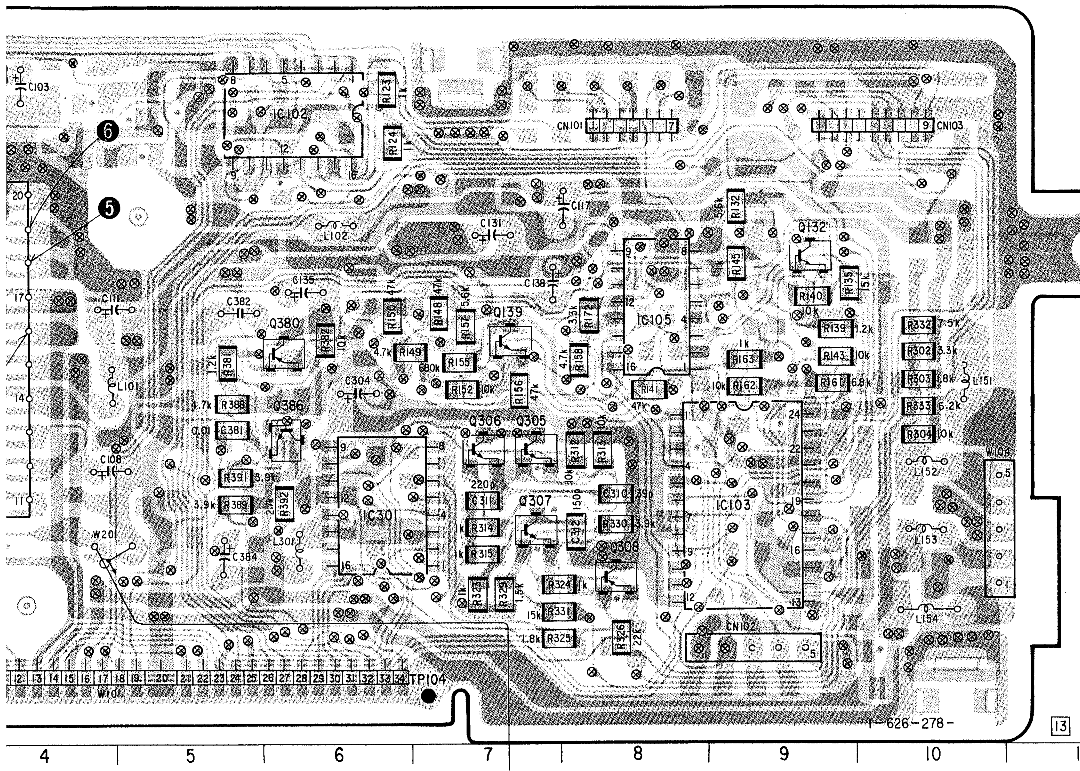


> Be sure to always read "Precautions for replacement o block" in page 100 when replacing the VC-36 comple 62 complete board, and CCD imager block (IC101 c board and IC002 on the DT-62 board).

VC-37 BOARD (COMPONENT SIDE)



, VC-37 (AGC/IRIS CONTROL, SYNC GENERATOR, ENCODER) PRINTED WIRING BOARD


IC102
IC105
IC103
IC301
CN101
CN103
CN102
TP104
W101
1-626-278-
13
4
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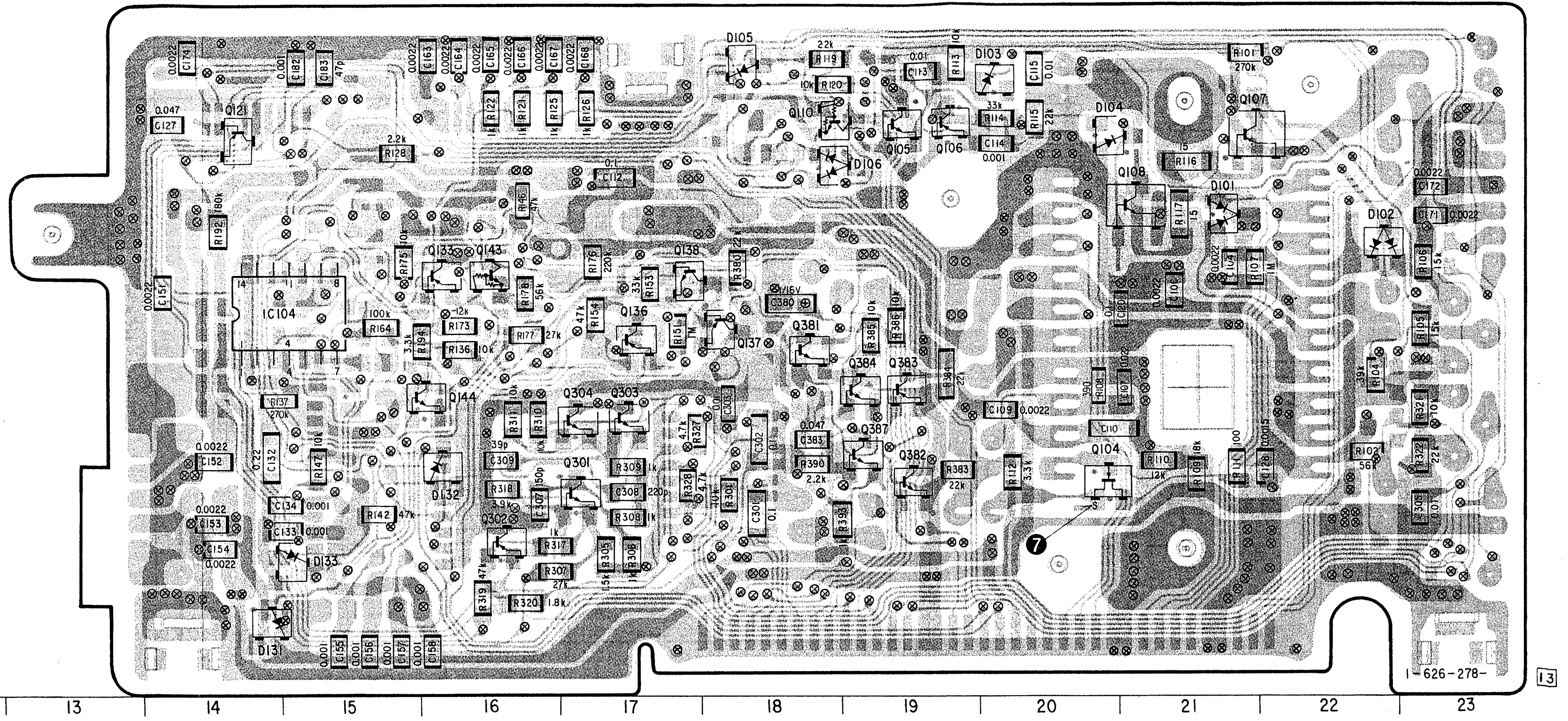
7
8
9
10
11
12

VC-36 BOARD (CONDUCTOR SIDE)


IC104
D105
D103
D104
Q107
Q108
D101
D102
Q104
D131
D133
1-626-278-
13
13
14
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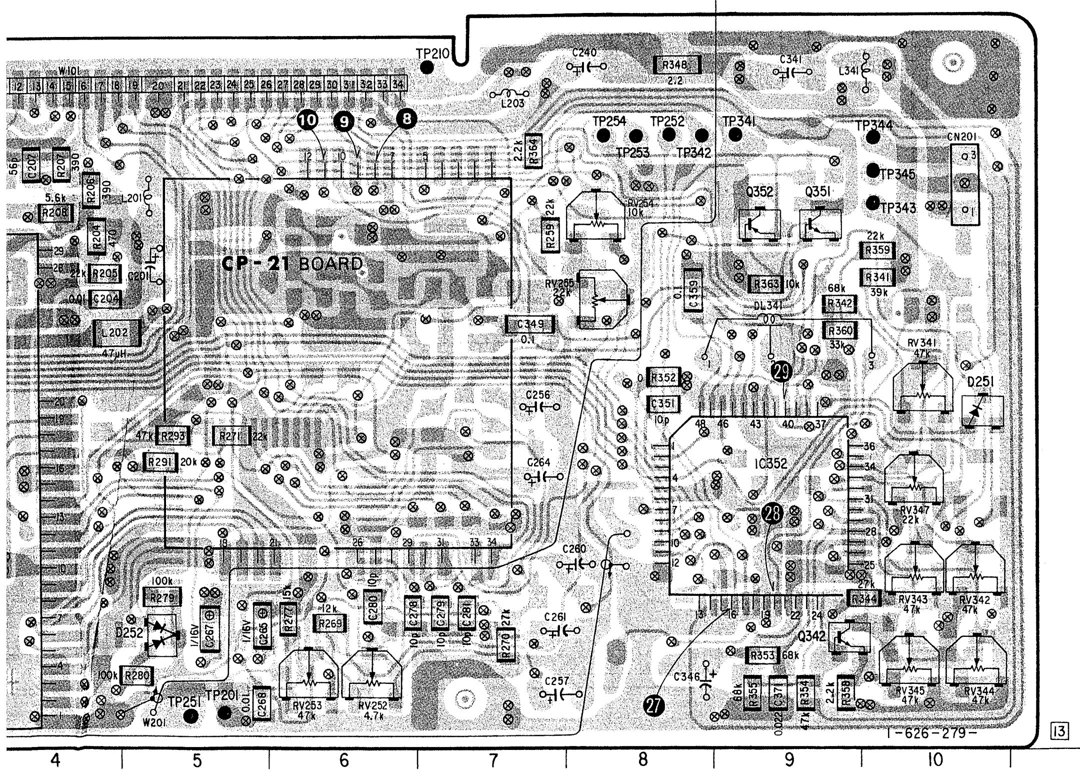
23

read "Precautions for replacement of CCD imager) when replacing the VC-36 complete board, DT- d, and CCD imager block (IC101 on the VC-36 on the DT-62 board).


CP-21 BOARD
TP210
TP254
TP253
TP252
TP342
TP341
TP344
TP345
TP343
CN201
IC352
TP251
TP201
W201
W101
1-626-279-
13
4
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6
7
8
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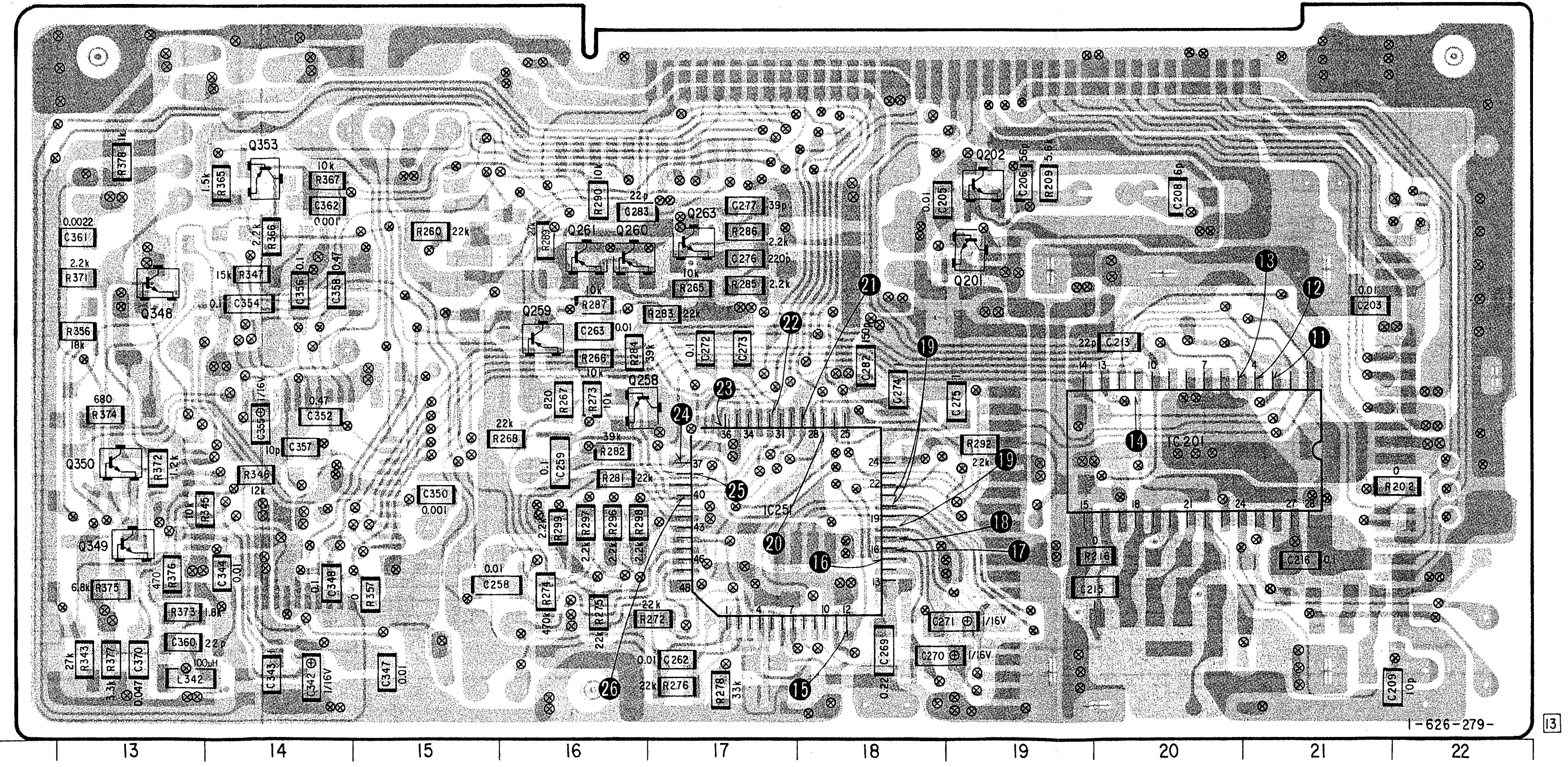
11
12

VC-37 BOARD (CONDUCTOR SIDE)


IC251
IC201
Q353
Q348
Q350
Q349
Q202
Q201
1-626-279-
13
13
14
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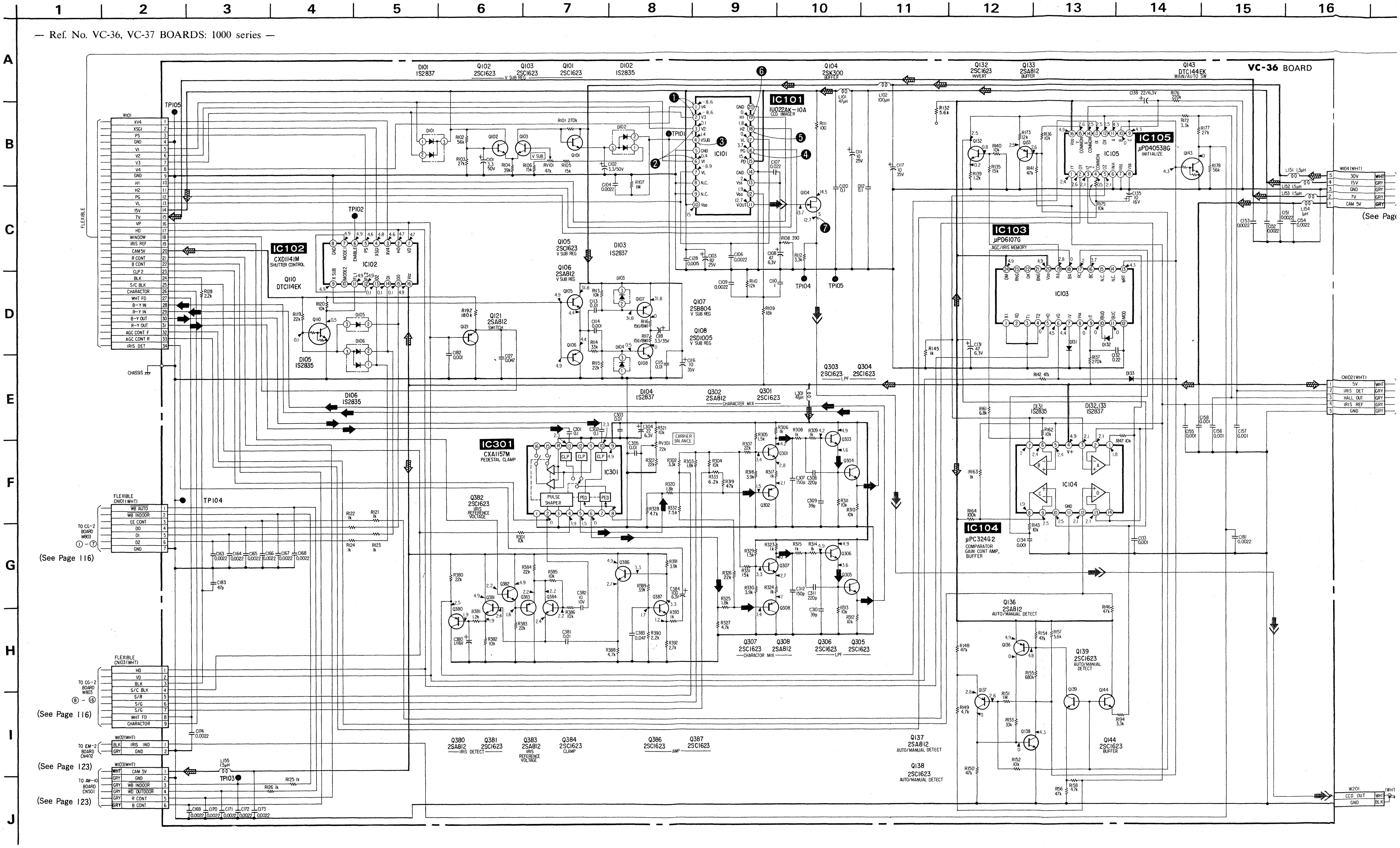
16
17
18
19
20
21
22

VC-36 (SHUTTER CONTROL, CCD IMAGER, AGC/IRIS MEMORY), VC-37 (AGC/IRIS CONTROL, SYNC GENERATOR, ENCODER) SCHEMATIC DIAGRAM

— Ref. No. VC-36, VC-37 BOARDS: 1000 series —


1
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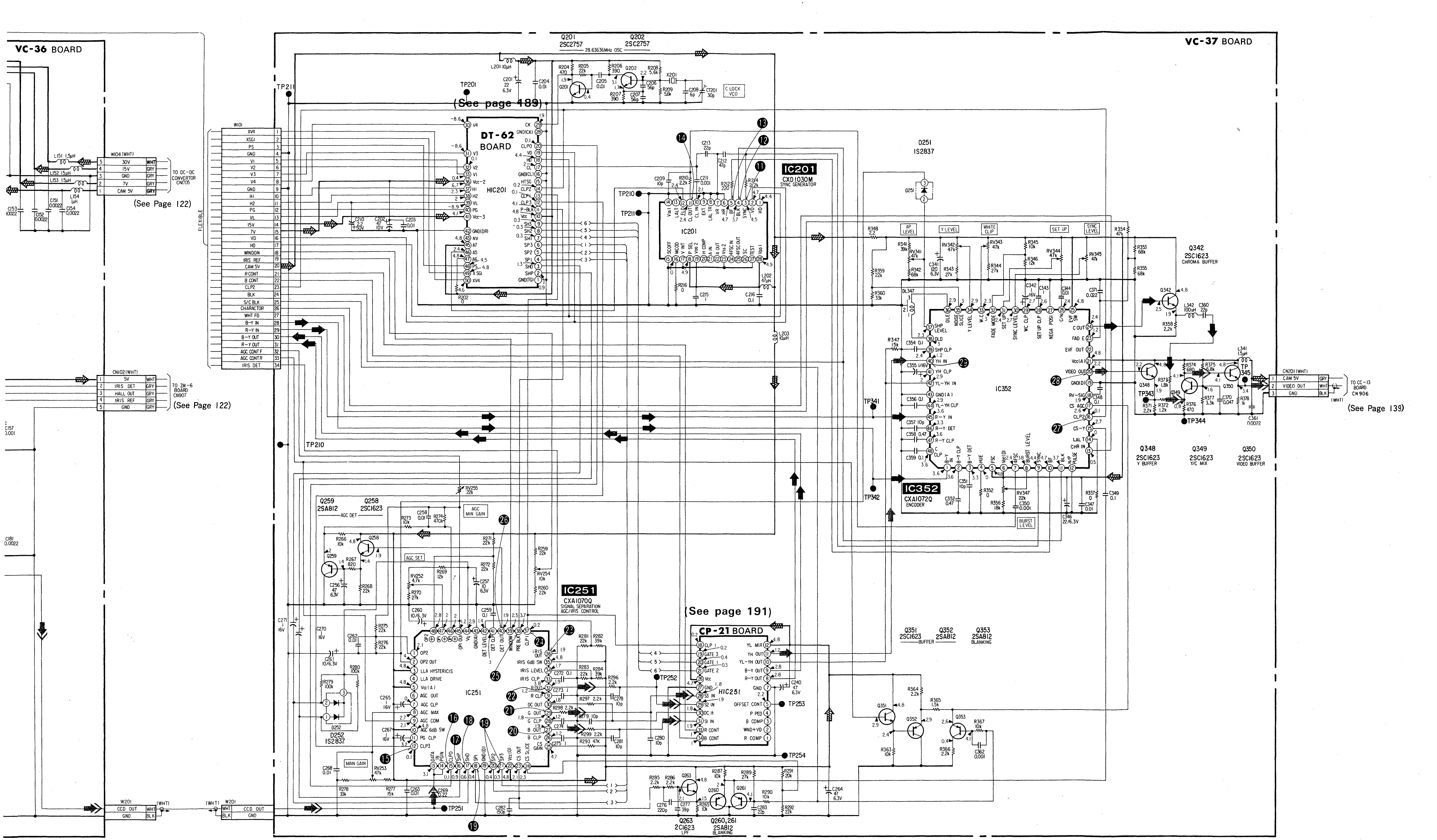
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
VC-36 BOARD
IC101
IU022AK-10A
CCD IMAGER
IC102
CXD1141M
SHUTTER CONTROL
IC103
μPD6107G
AGC/IRIS MEMORY
IC104
μPC324G2
COMPARATOR
GAIN CONT AMP,
BUFFER
IC105
μPD4053BG
INITIALIZE
IC301
CXA1157M
PEDESTAL CLAMP
D101
1S2837
Q102
2SC1623
Q103
2SC1623
V SUB REG
Q101
2SC1623
D102
1S2835
Q104
2SK300
BUFFER
Q132
2SC1623
INVERT
Q133
2SA812
BUFFER
Q143
DTC144EK
MAIN/AUTO SW
Q105
2SC1623
V SUB REG
Q106
2SA812
V SUB REG
D103
1S2837
Q107
2SB804
V SUB REG
Q108
2SD1005
V SUB REG
Q110
DTC114EK
D105
1S2835
Q121
2SA812
SWITCH
D106
1S2835
D104
1S2837
Q302
2SA812
Q301
2SC1623
CHARACTER MIX
Q303
2SC1623
Q304
2SC1623
LPF
D131
1S2835
D132,133
1S2837
Q382
2SC1623
IRIS
REFERENCE
VOLTAGE
CARRIER
BALANCE
PULSE
SHAPER
CLP
PED
Q307
2SC1623
Q308
2SA812
CHARACTOR MIX
Q306
2SC1623
Q305
2SC1623
LPF
Q136
2SA812
AUTO/MANUAL DETECT
Q139
2SC1623
AUTO/MANUAL
DETECT
Q137
2SA812
AUTO/MANUAL DETECT
Q138
2SC1623
AUTO/MANUAL DETECT
Q144
2SC1623
BUFFER
Q380
2SA812
Q381
2SC1623
IRIS DETECT
Q383
2SA812
IRIS
REFERENCE
VOLTAGE
Q384
2SC1623
CLAMP
Q386
2SC1623
Q387
2SC1623
AMP
W101
XV4
XSG1
PS
GND
V1
V2
V3
V4
GND
H1
H2
PG
VL
15V
7V
VP
HD
WINDOW
IRIS REF
CAM5V
R CONT
B CONT
CLP 2
BLK
S/C BLK
CHARACTOR
WHT FD
B-Y IN
R-Y IN
B-Y OUT
R-Y OUT
AGC CONT F
AGC CONT R
IRIS DET
FLEXIBLE
CHASSIS
TP101
TP102
TP103
TP104
TP105
FLEXIBLE
CN101 (WHT)
WB AUTO
WB INDOOR
EE CONT
D0
D1
D2
GND
TO CG-2
BOARD
W803
① - ⑦
(See Page 116)
FLEXIBLE
CN103 (WHT)
HD
VD
BLK
S/C BLK
S/R
S/G
S/G
WHT FD
CHARACTOR
TO CG-2
BOARD
W803
⑧ - ⑯
(See Page 116)
W102 (WHT)
IRIS IND
GND
TO EM-2
BOARD
CN412
(See Page 123)
W103 (WHT)
CAM 5V
GND
WB INDOOR
WB OUTDOOR
R CONT
B CONT
TO AW-10
BOARD
CN501
(See Page 123)
W104 (WHT)
30V
15V
GND
7V
CAM 5V
(See Page
CN102 (WHT)
5V
IRIS DET
HALL OUT
IRIS REF
GND
W201
CCD OUT
GND

Be sure to always read "Precautions for replacement of CCD imager block" in page 100 when replacing the VC-36 complete board, DT-62 complete board, and CCD imager block (IC101 on the VC-36 board and IC002 on the DT-62 board).


15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
VC-36 BOARD
VC-37 BOARD
W104 (WHT)
TO DC-DC CONVERTOR CNC05
(See Page 122)
CN102 (WHT)
TO ZM-6 BOARD CN907
(See Page 122)
W101
FLEXIBLE
Q201 2SC2757
Q202 2SC2757
28.63636MHz OSC
CLOCK VCO
TP201
TP211
(See page 189)
DT-62 BOARD
HIC201
TP210
TP211
IC201
CXD1030M
SYNC GENERATOR
D251 1S2837
AP LEVEL
Y LEVEL
WHITE CLIP
SET UP
SYNC LEVEL
Q342 2SC1623 CHROMA BUFFER
IC352
CXA1072Q ENCODER
BURST LEVEL
TP341
TP342
TP343
TP344
TP345
Q348 2SC1623 Y BUFFER
Q349 2SC1623 Y/C MIX
Q350 2SC1623 VIDEO BUFFER
CN201 (WHT)
TO CC-13 BOARD CN906
(See Page 139)
Q259 2SA812
Q258 2SC1623
AGC DET
AGC MIN GAIN
AGC SET
IC251
CXA1070Q
SIGNAL SEPARATION AGC/IRIS CONTROL
MAIN GAIN
D252 1S2837
(See page 191)
CP-21 BOARD
HIC251
TP252
TP253
TP254
TP251
Q351 2SC1623
Q352 2SA812
BUFFER
Q353 2SA812
BLANKING
Q263 2SC1623 LPF
Q260,261 2SA812 BLANKING
W201
CCD OUT
GND

● Signal path

➡ :REC Y SIGNAL

➡ :REC CHROMA SIGNAL

➡ :REC Y & CHROMA SIGNAL

A

B

C

D

E

F

G

H

I

J

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor sid
- ⊗ : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- Digital transistor (FC-15: Q702, 703, 704, 705, 709, 712, 7 715, CG-2: Q806) transistor with resistors.
  Refer to the FC-15, CG-2 boards schematic diagrams for dig transistor.

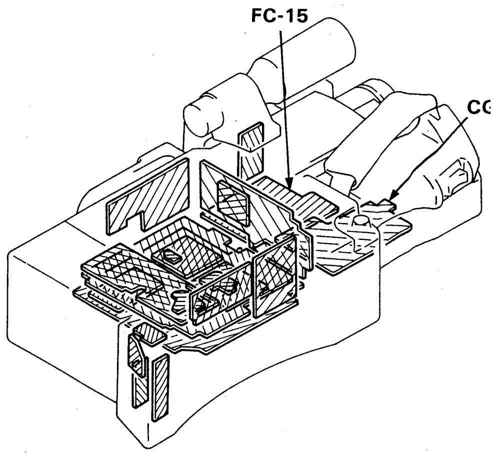
Note

Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

* Pattern being seen in the state from the surface side are indicated in gray pattern.

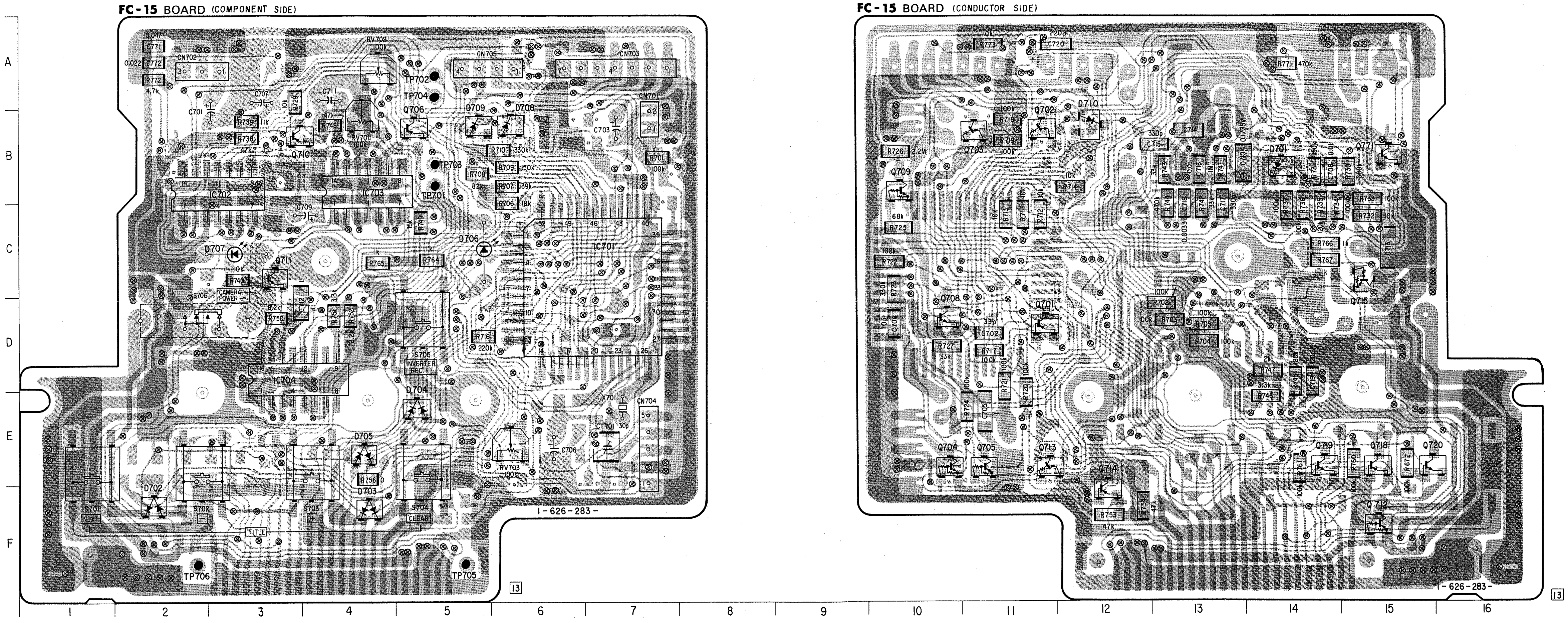
* Pattern being seen in the state of the rear surface side is indicated in green pattern.



FC-15 (CAMERA SYSTEM CONTROL, CAMERA FUNCTION KEY MATRIX), CG-2 (CHARACTER GENERATOR, CAMERA FUNCTION SWITCH) PRINTED WIRING BOARD

— Ref. No. FC-15, CG-2 BOARDS: 1000 series —

FC-15 BOARD	
CN701	A-7
CN702	A-2
CN703	A-7
CN704	E-7
CN705	A-5
CT701	E-7
D701	B-14
D702	F-2
D703	F-4
D704	E-5
D705	E-4
D706	C-5
D707	C-3
D708	B-6
D709	A-5
D710	B-12
IC701	C-6
IC702	B-2
IC703	B-4
IC704	D-3
Q701	D-11
Q702	B-11
Q703	B-11
Q704	E-10
Q705	E-11
Q706	B-5
Q708	D-10
Q709	B-10
Q710	B-3
Q711	C-3
Q712	F-15
Q713	E-11
Q714	E-12
Q715	C-15
Q718	E-15
Q719	E-14
Q720	E-15
Q771	B-15
RV701	B-4
RV702	A-4
RV703	E-6
TP701	B-5
TP702	A-5
TP703	B-5
TP704	A-5
TP705	F-5
TP706	F-2

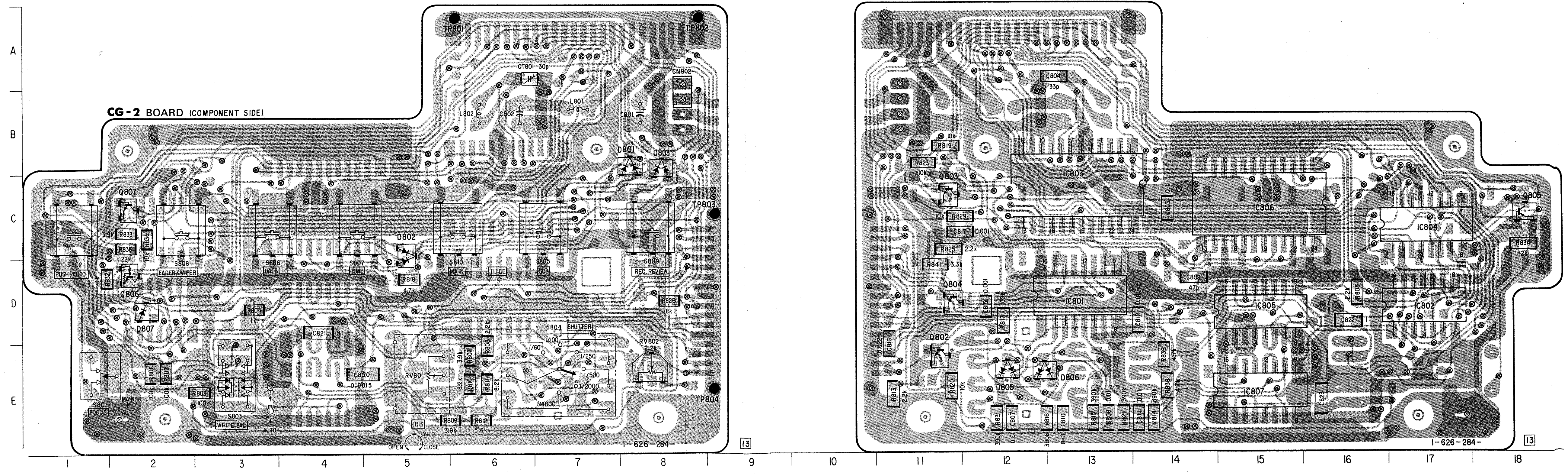


FC-15 BOARD (COMPONENT SIDE)

FC-15 BOARD (CONDUCTOR SIDE)

A
B
C
D
E
F
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
IC701
IC702
IC703
IC704
CN702
CN703
CN704
CN705
S701 NEXT
S702
S703
S704 CLEAR
S705 INVERTER REC
S706 CAMERA POWER
TITLE
TP701
TP702
TP703
TP704
TP705
TP706
1-626-283-
13

CG-2 BOARD	
CN802	B-8
CT801	A-6
D801	B-8
D802	C-5
D803	B-8
D805	E-12
D806	E-12
D807	D-2
IC801	D-13
IC802	D-17
IC803	C-13
IC804	C-17
IC805	D-15
IC806	C-15
IC807	E-15
Q802	E-11
Q803	C-11
Q804	D-11
Q805	C-18
Q806	D-2
Q807	C-2
RV801	E-5
RV802	E-8
TP801	A-6
TP802	A-8
TP803	C-9
TP804	E-9



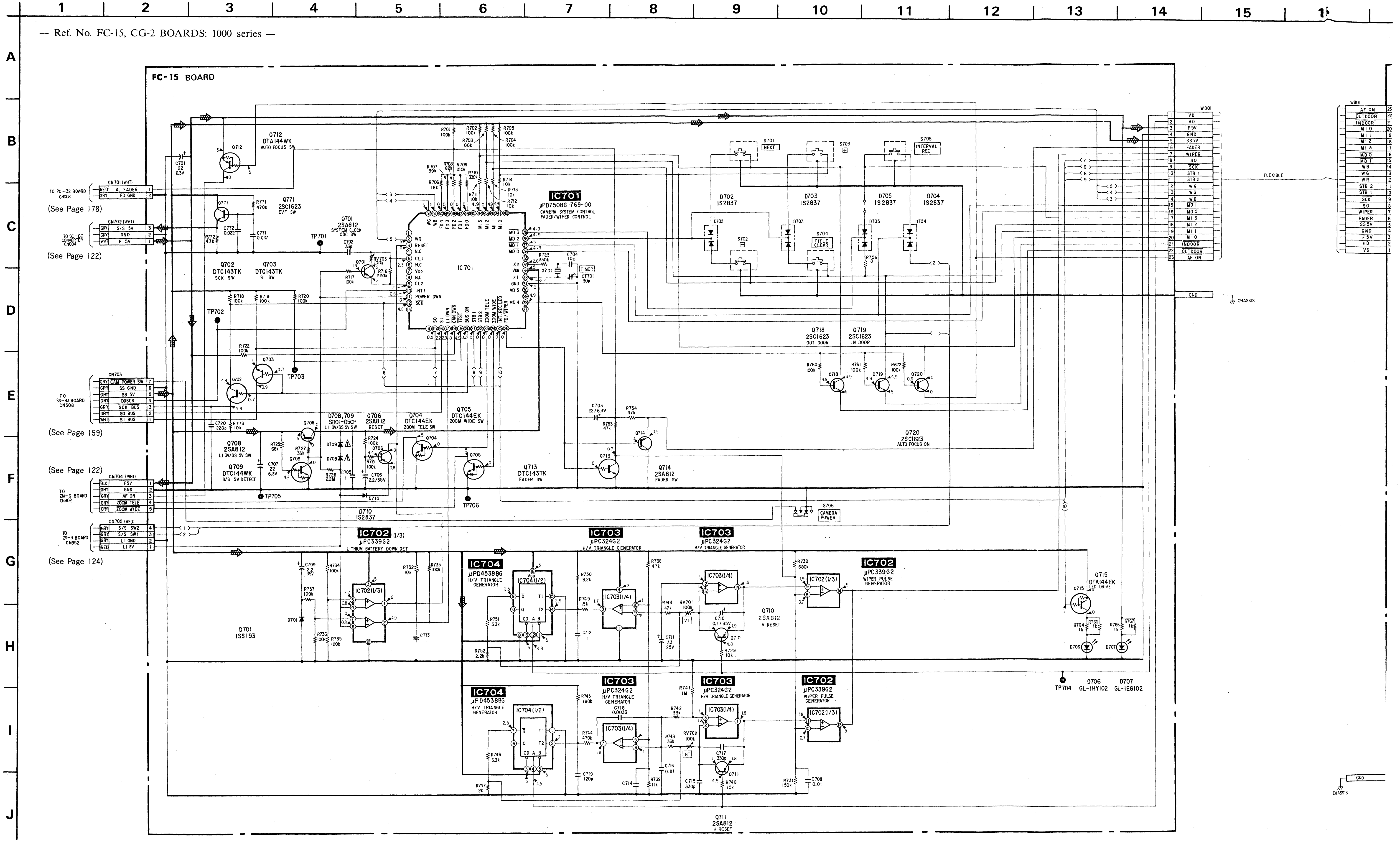
CG-2 BOARD (COMPONENT SIDE)

CG-2 BOARD (CONDUCTOR SIDE)

A
B
C
D
E
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
S802 PUSH AUTO
S808 FADER/WIPER
S806 DATE
S807 TIME
S810 MAIN
TITLE
S805 SUB
S809 REC REVIEW
S804 SHUTTER
S801 FOCUS
S803 WHITE BAL
IRIS
OPEN
CLOSE
AUTO
MAIN
IC801
IC802
IC803
IC805
IC806
IC807
TP801
TP802
TP803
TP804
1-626-284-
13

FC-15 (CAMERA SYSTEM CONTROL, CAMERA FUNCTION KEY MATRIX), CG-2 (CHARACTER GENERATOR, CAMERA FUNCTION SWITCH) SCHEMATIC DIAGRAM

— Ref. No. FC-15, CG-2 BOARDS: 1000 series —


1
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6
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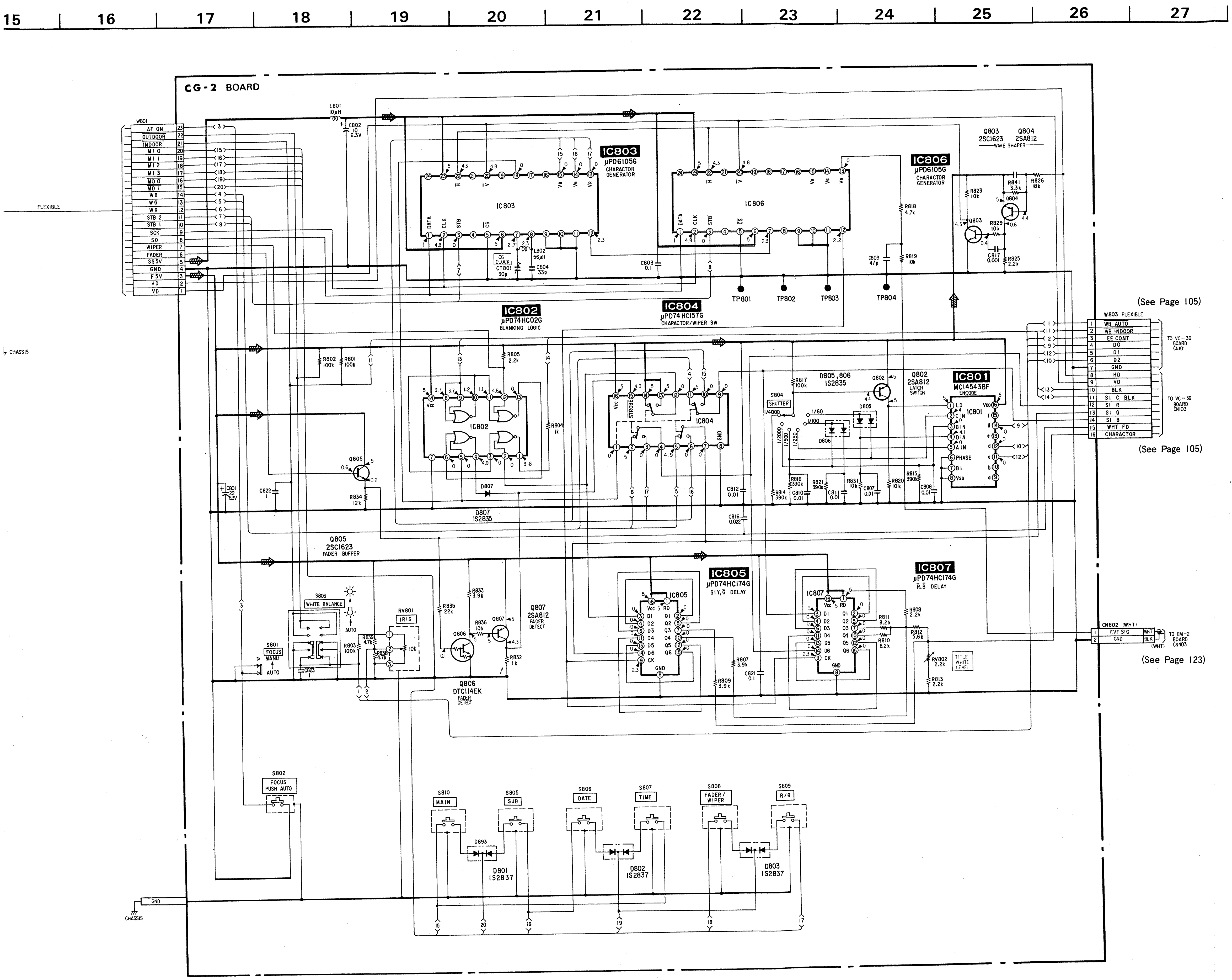
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
FC-15 BOARD
TO PC-32 BOARD CN008
CN701 (WHT)
RED A. FADER 1
GRY FD GND 2
(See Page 178)
CN702 (WHT)
GRY S/S 5V 3
GRY GND 2
WHT F 5V 1
TO DC-DC CONVERTER CN004
(See Page 122)
Q712 DTA144WK AUTO FOCUS SW
Q771 2SC1623 EVF SW
R771 470k
C771 0.047
C772 0.022
R772 4.7k
C701 22 6.3V
Q701 2SA812 SYSTEM CLOCK OSC SW
C702 33p
TP701
Q702 DTC143TK SCK SW
Q703 DTC143TK SI SW
R718 100k
R719 100k
R720 100k
TP702
R722 100k
TP703
CN703
GRY CAM POWER SW 7
GRY SS GND 6
GRY SS 5V 5
GRY DDSCS 4
GRY SCK BUS 3
GRY SO BUS 2
WHT SI BUS 1
TO SS-83 BOARD CN308
(See Page 159)
C720 220p
R773 10k
Q708 2SA812 L1 3V/SS 5V SW
Q709 DTC144WK S/S 5V DETECT
C707 22 6.3V
TP705
R725 68k
R727 33k
D708,709 SB01-05CP L1 3V/SS 5V SW
D709
D708
R726 2.2M
C705
Q706 2SA812 RESET
R724 100k
R721 100k
C706 2.2/35V
D710
D710 1S2837
Q704 DTC144EK ZOOM TELE SW
Q705 DTC144EK ZOOM WIDE SW
TP706
(See Page 122)
CN704 (WHT)
BLK F5V 1
GRY GND 2
GRY AF ON 3
GRY ZOOM TELE 4
GRY ZOOM WIDE 5
TO ZM-6 BOARD CN902
CN705 (RED)
GRY S/S SW2 4
GRY S/S SW1 3
GRY L1 GND 2
RED L1 3V 1
TO ZS-3 BOARD CN952
(See Page 124)
R701 100k
R702 100k
R703 100k
R704 100k
R705 100k
R706 18k
R707 39k
R708 82k
R709 150k
R710 330k
R711 10k
R712 10k
R713 10k
R714 10k
RV703 100k
R716 220k
R717 100k
IC701
μPD7508G-769-00
CAMERA SYSTEM CONTROL FADER/WIPER CONTROL
IC701
WR
RESET
N.C
CL1
VDD
N.C
CL2
INT1
POWER DWN
SCK
MO 3
MO 2
MO 1
MO 0
X2
VDD
X1
GND
MO 5
MO 4
SO
SI
L1 DOWN
CAM DWN
TEST
BUS ON
STB 1
STB 2
ZOOM TELE
ZOOM WIDE
INT. REC LED
FD WIPER
WR
WB
FO 4
FO 3
FO 2
FO 1
FO 0
MI 3
MI 2
MI 1
MI 0
R723 330k
X701
C704 10p
CT701 30p
TIMER
C703 22/6.3V
R753 47k
R754 47k
Q713 DTC143TK FADER SW
Q714 2SA812 FADER SW
S701 NEXT
S703
S705 INTERVAL REC
D702 1S2837
D703 1S2837
D705 1S2837
D704 1S2837
S702
S704 TITLE CLEAR
R756
Q718 2SC1623 OUT DOOR
Q719 2SC1623 IN DOOR
R760 100k
R761 100k
R672 100k
Q720 2SC1623 AUTO FOCUS ON
S706 CAMERA POWER
W801
1 VD
2 HD
3 F5V
4 GND
5 SS5V
6 FADER
7 WIPER
8 SO
9 SCK
10 STB 1
11 STB 2
12 WR
13 WG
14 WB
15 MO 1
16 MO 0
17 MI 3
18 MI 2
19 MI 1
20 MI 0
21 INDOOR
22 OUTDOOR
23 AF ON
GND
CHASSIS
FLEXIBLE
W801
AF ON 23
OUTDOOR 22
INDOOR 21
MI 0 20
MI 1 19
MI 2 18
MI 3 17
MO 0 16
MO 1 15
WB 14
WG 13
WR 12
STB 2 11
STB 1 10
SCK 9
SO 8
WIPER 7
FADER 6
SS5V 5
GND 4
F5V 3
HD 2
VD 1
IC702 (1/3)
μPC339G2
LITHIUM BATTERY DOWN DET
C709 2.2 35V
R734 100k
R737 100k
R736 100k
R735 120k
R732 10k
R733 100k
C713 1
D701
D701 1SS193
IC704
μPD4538BG
H/V TRIANGLE GENERATOR
IC704 (1/2)
R751 3.3k
R752 2.2k
IC703
μPC324G2
H/V TRIANGLE GENERATOR
IC703 (1/4)
R750 8.2k
R749 15k
C712 1
R738 47k
R748 47k
RV701 100k
VT
C710 0.1/35V
C711 3.3 25V
Q710 2SA812 V RESET
R729 10k
R730 680k
IC702 (1/3)
μPC339G2
WIPER PULSE GENERATOR
Q715 DTA144EK LED DRIVE
R764 1k
R765 1k
R766 1k
R767 1k
D706
D707
TP704
D706 GL-1HY102
D707 GL-1EG102
R745 180k
R746 3.3k
R747 2k
R744 470k
C718 0.0033
C719 120p
C714 1
R739 11k
C716 0.01
R741 1M
R742 33k
R743 33k
RV702 100k
HT
C717 330p
C715 330p
R740 10k
Q711 2SA812 H RESET
R731 150k
C708 0.01
GND
CHASSIS


15 16 17 18 19 20 21 22 23 24 25 26 27
CG-2 BOARD
W801
AF ON 23
OUTDOOR 22
INDOOR 21
MI 0 20
MI 1 19
MI 2 18
MI 3 17
MD 0 16
MD 1 15
WB 14
WG 13
WR 12
STB 2 11
STB 1 10
SCK 9
SO 8
WIPER 7
FADER 6
SS5V 5
GND 4
F5V 3
HD 2
VD 1
FLEXIBLE
CHASSIS
L801 10µH
C802 10 6.3V
IC803 µPD6105G CHARACTOR GENERATOR
IC806 µPD6105G CHARACTOR GENERATOR
Q803 2SC1623
Q804 2SA812
WAVE SHAPER
CG CLOCK
CT801 30p
L802 56µH
C804 33p
C803 0.1
C809 47p
R818 4.7k
R819 10k
TP801 TP802 TP803 TP804
IC802 µPD74HC02G BLANKING LOGIC
IC804 µPD74HC157G CHARACTOR/WIPER SW
R802 100k
R801 100k
R805 2.2k
R804 1k
Q805
R834 12k
C801 22 6.3V
C822 1
D807 1S2835
Q805 2SC1623 FADER BUFFER
R817 100k
D805,806 1S2835
S804 SHUTTER
Q802 2SA812 LATCH SWITCH
IC801 MC14543BF ENCODE
R816 390k
R814 390k
C810 0.01
R821 390k
C811 0.01
R831 10k
C807 0.01
R820 10k
R815 390k
C808 0.01
C812 0.01
C816 0.022
W803 FLEXIBLE
1 WB AUTO
2 WB INDOOR
3 EE CONT
4 D0
5 D1
6 D2
7 GND
8 HD
9 VD
10 BLK
11 SI C BLK
12 SI R
13 SI G
14 SI B
15 WHT FD
16 CHARACTOR
TO VC-36 BOARD CN101
TO VC-36 BOARD CN103
(See Page 105)
(See Page 105)
S803 WHITE BALANCE
AUTO
S801 FOCUS MANU AUTO
C823 1
RV801 IRIS
R839 4.7k
R803 100k
R838 4.7k
R835 22k
R833 3.9k
R836 10k
Q806 DTC114EK FADER DETECT
Q807 2SA812 FADER DETECT
R832 1k
IC805 µPD74HC174G SIY,G DELAY
IC807 µPD74HC174G R,B DELAY
R807 3.9k
R809 3.9k
C821 0.1
R808 2.2k
R811 8.2k
R812 5.6k
R810 8.2k
RV802 2.2k TITLE WHITE LEVEL
R813 2.2k
CN802 (WHT)
EVF SIG
GND
TO EM-2 BOARD CN403
(See Page 123)
S802 FOCUS PUSH AUTO
S810 MAIN
S805 SUB
S806 DATE
S807 TIME
S808 FADER/WIPER
S809 R/R
D693
D801 1S2837
D802 1S2837
D803 1S2837
GND
CHASSIS

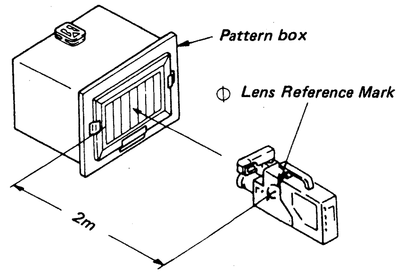
Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in µF unless otherwise noted. pF: µµF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel disignation.
- ☐ : adjustment for repair.
- ▬ : B + line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) Voltage are DC between ground and measurement point.
  (The tester used is the digital multimeter DC10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

1. Connection


Pattern box
Lens Reference Mark
2m

2. Adjust the distance so that the output w form of Fig. a and the Fig. b can be obtain.

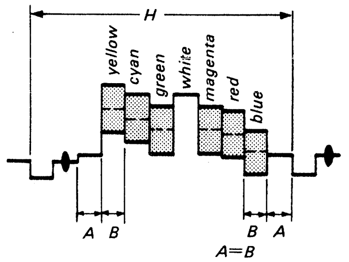

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A=B

Fig. a Camera output waveform of TP345 on VC-37 board.

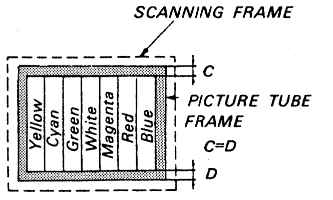

SCANNING FRAME
Yellow
Cyan
Green
White
Magenta
Red
Blue
C
PICTURE TUBE FRAME
C=D
D

Fig. b Picture of TV monitor screen

AF-43 (AUTO FOCUS CONTROL), AF-44 (AUTO FOCUS SENSOR), AW-10 (AUTO WHITEBALANCE), ZM-6 (ZOOM MOTOR D

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- The ● number is the reference number in the waveform diagram.
- Digital transistor (EM-2: Q415, AW-10: Q501, 502, 503, 504, 505, 506, 507, 508, ZM-6: Q901, 910) transistor with resistors. Refer to the EM-2, AW-10, ZM-6 boards schematic diagrams for digital transistor.

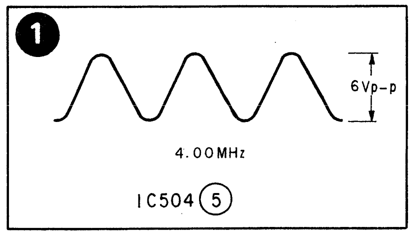
Note

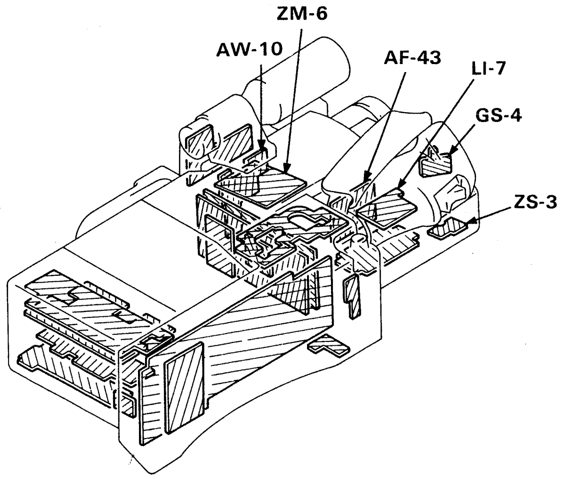
Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

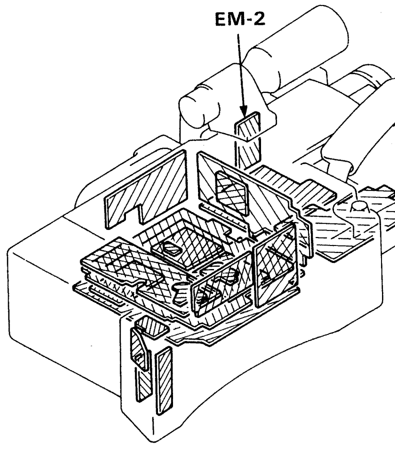
- * Pattern being seen in the state from the surface side are indicated in gray pattern.
- * Pattern being seen in the state of the rear surface side is indicated in green pattern.

AW-10 BOARD





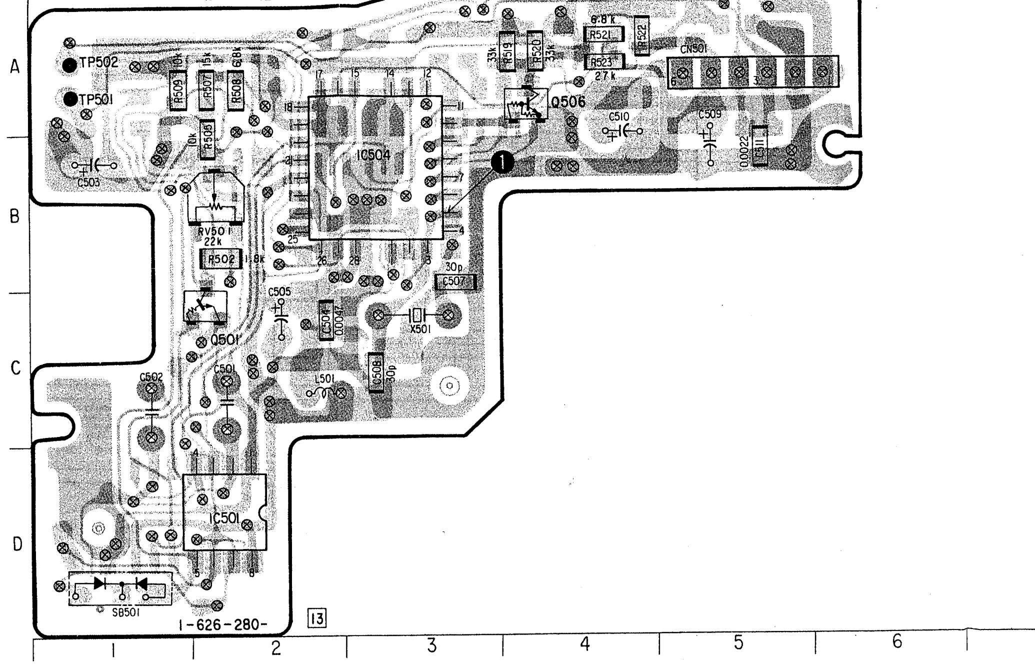
ZM-6
AW-10
AF-43
LI-7
GS-4
ZS-3



— Ref. No. AF-43, AF-44, AW-10, ZM-6, EM-2, GS-4, LD-9, LI-7, ZS-3 BOARDS: 2000 series —

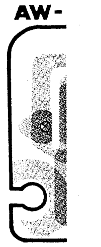
AW-10 BOARD	
CN501	A-5
D501	C-10
IC501	D-2
IC502	A-11
IC503	D-11
IC504	B-3
Q501	C-2
Q502	C-11
Q503	B-10
Q504	B-10
Q505	A-9
Q506	A-4
Q507	A-9
Q508	A-9
RV501	B-2
TP501	A-1
TP502	A-1

AW-10 BOARD (COMPONENT SIDE)



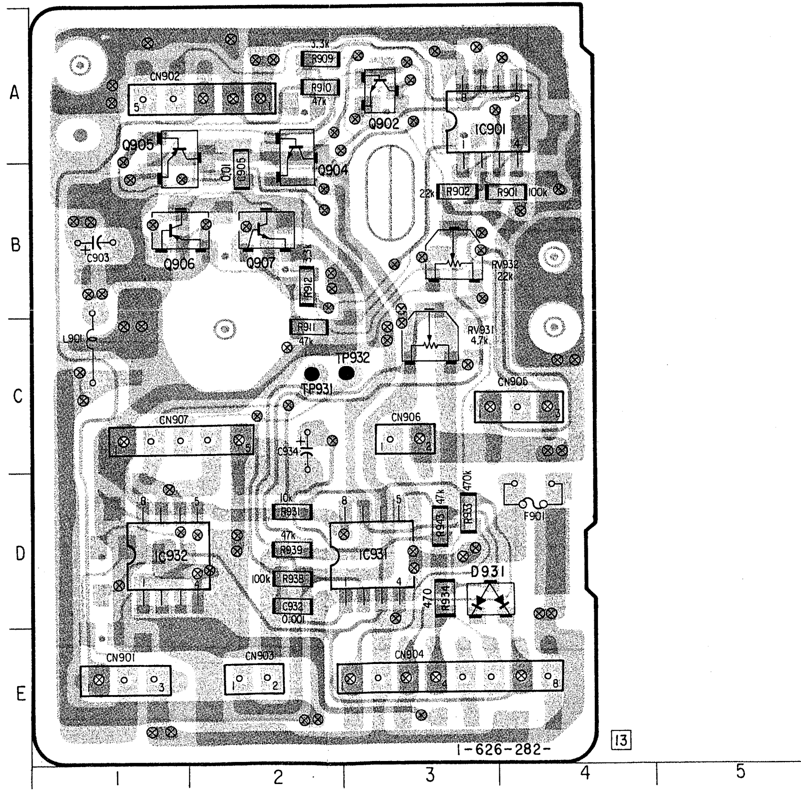
A
B
C
D
TP502
TP501
C503
IC504
Q506
C510
C505
CN501
R521
R523
27k
RV501
22k
R502
Q501
C502
L501
X501
C507
IC501
SB501
1-626-280-
13
1
2
3
4
5
6
7

AW-



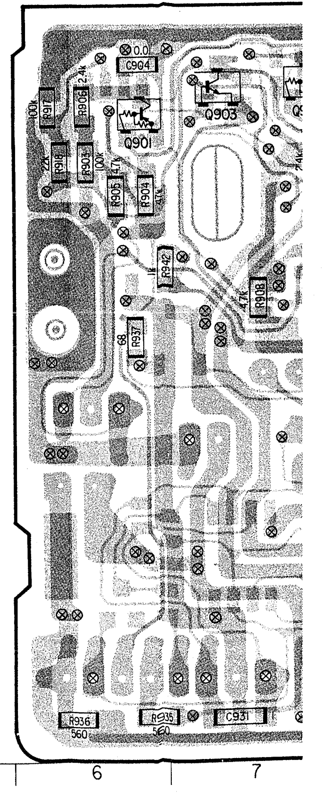
ZM-6 BOARD	
CN901	E-1
CN902	A-1
CN903	E-2
CN904	E-3
CN905	C-4
CN906	C-3
CN907	C-1
D931	D-3
IC901	A-3
IC931	D-3
IC932	D-1
Q901	A-6
Q902	A-3
Q903	A-7
Q904	A-2
Q905	A-1
Q906	B-1
Q907	B-2
Q908	B-8
Q909	B-7
Q910	A-7
RV931	C-3
RV932	B-3
TP931	C-2
TP932	C-3

ZM-6 BOARD (COMPONENT SIDE)



A
B
C
D
E
CN902
R909
R910
47k
Q902
IC901
Q905
Q904
R902
R901
100k
C903
Q906
Q907
RV932
22k
L901
R911
47k
TP932
TP931
RV931
4.7k
CN905
CN907
CN906
C934
F901
IC932
R939
R938
IC931
C932
D931
CN901
CN903
CN904
1-626-282-
13
1
2
3
4
5

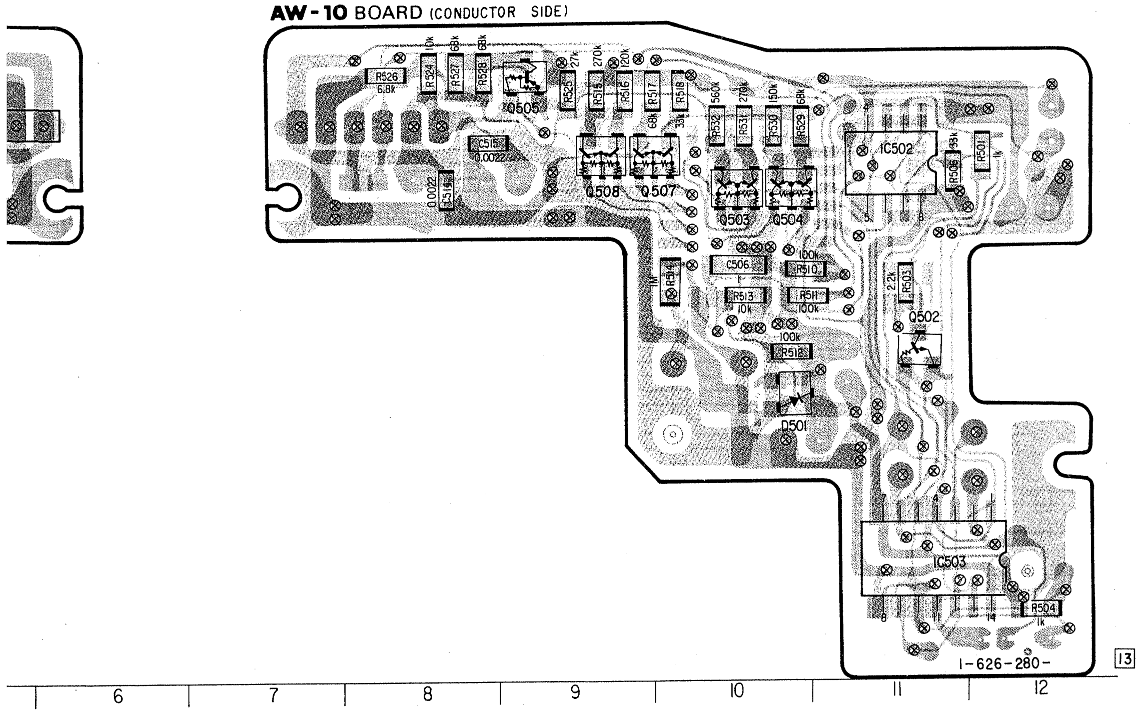
ZM-6 BOARD (CONDUCTOR SIDE)



C904
Q903
Q901
R906
R905
R936
R935
C931
6
7

, ZM-6 (ZOOM MOTOR DRIVE, IRIS CONTROL), EM-2 (VIEW FINDER RELAY), GS-4 (START/STOP SWITCH), ZS-3 (START, STOP/ZOOM SWITCH RELAY), LI-7 (LITHIUM BATTERY STORAGE), LD-9 (INFRARED EMISSION) PRINTED WIRING BOARD

AW-10 BOARD (CONDUCTOR SIDE)

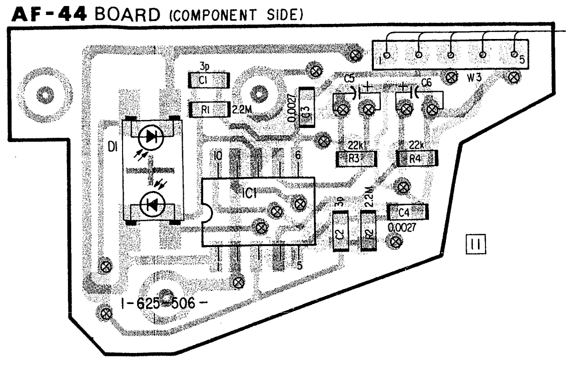
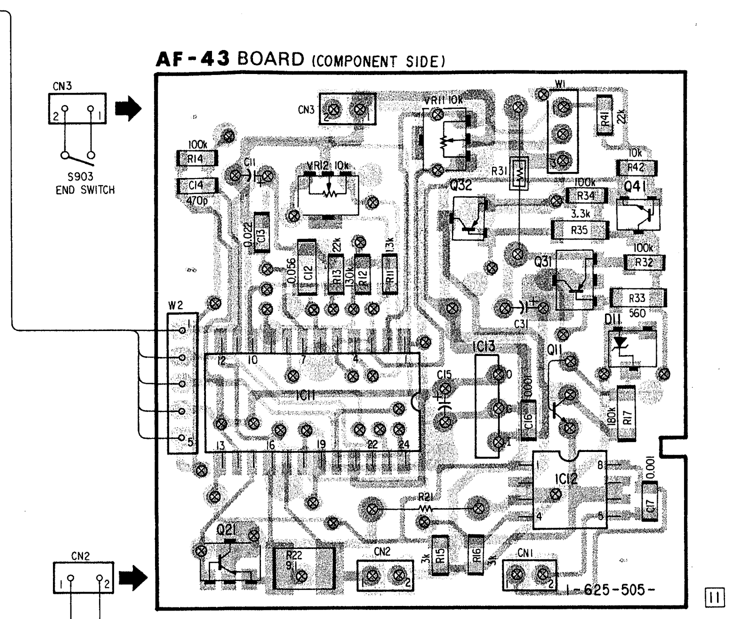
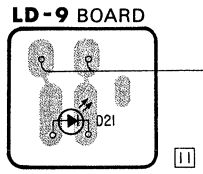


IC502
IC503
Q501
Q502
Q503
Q504
Q505
Q507
Q508
1-626-280-
13
6
7
8
9
10
11
12

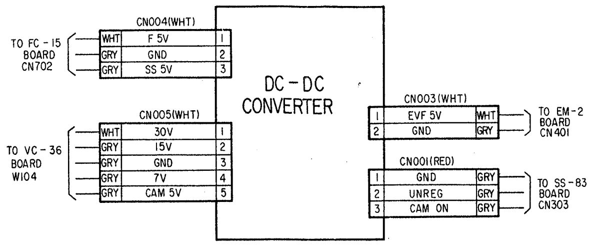
AF-44 BOARD (COMPONENT SIDE)

AF-43 BOARD (COMPONENT SIDE)

LD-9 BOARD

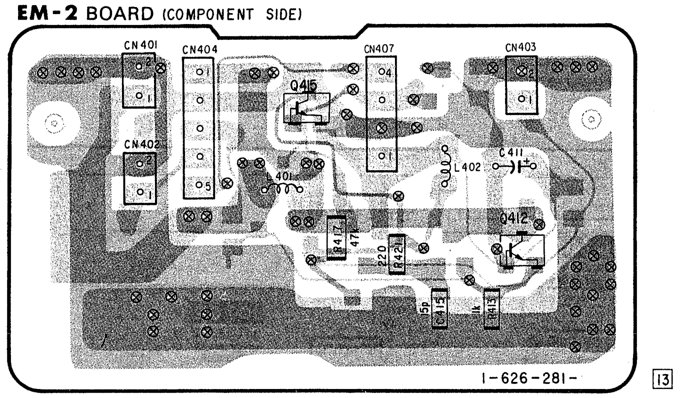




1-625-506-
11
CN3
S903
END SWITCH
IC11
IC12
IC13
Q21
Q31
Q32
Q41
D11
CN1
CN2
W1
W2
1-625-505-
11
D21
11



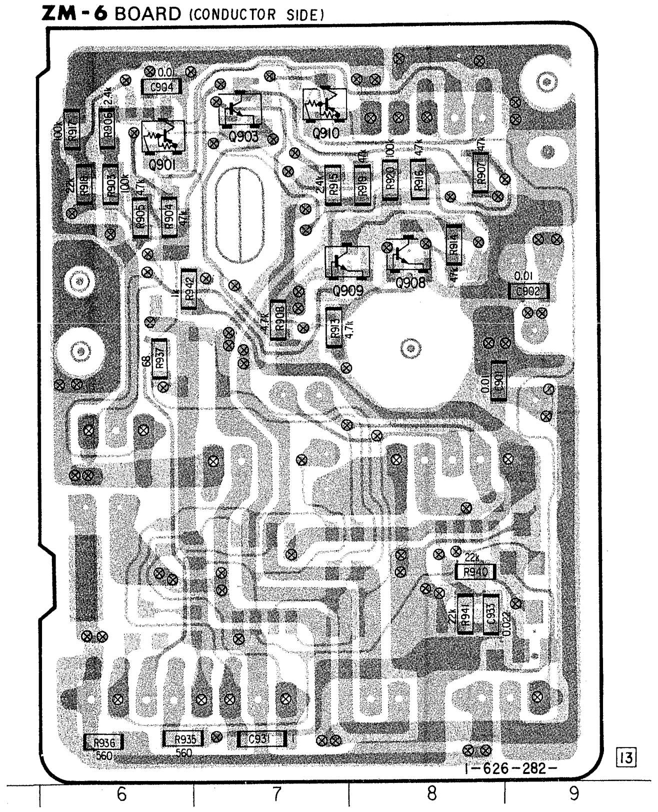
DC-DC CONVERTER
CN004(WHT)
TO FC-15 BOARD CN702
WHT F 5V 1
GRY GND 2
GRY SS 5V 3
CN005(WHT)
TO VC-36 BOARD W104
WHT 30V 1
GRY 15V 2
GRY GND 3
GRY 7V 4
GRY CAM 5V 5
CN003(WHT)
1 EVF 5V WHT
2 GND GRY
TO EM-2 BOARD CN401
CN001(RED)
1 GND GRY
2 UNREG GRY
3 CAM ON GRY
TO SS-83 BOARD CN303

EM-2 BOARD (COMPONENT SIDE)



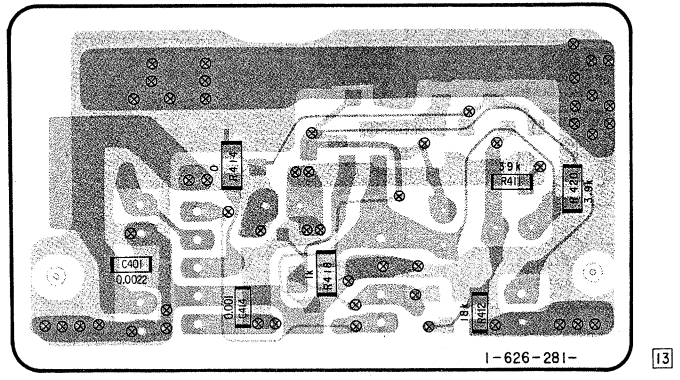
CN401
CN402
CN403
CN404
CN407
Q415
Q412
L401
L402
C411
1-626-281-
13

ZM-6 BOARD (CONDUCTOR SIDE)



Q901
Q903
Q908
Q909
Q910
1-626-282-
13
6
7
8
9

EM-2 BOARD (CONDUCTOR SIDE)

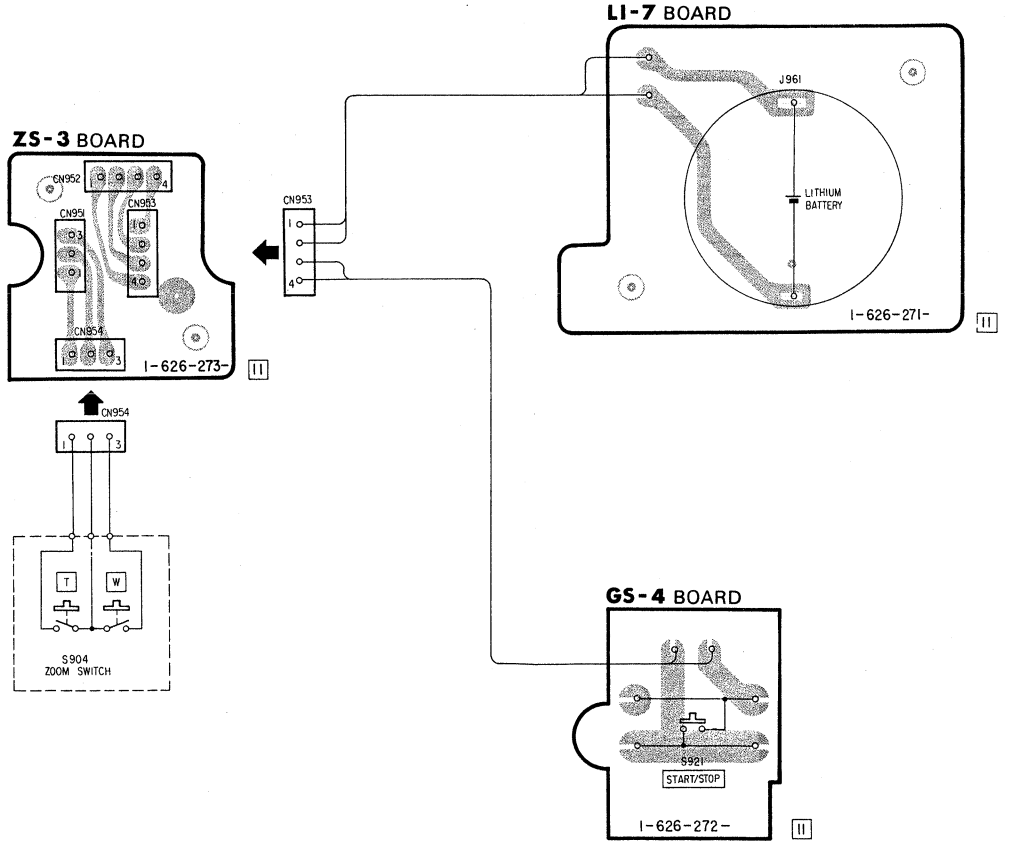


C401
1-626-281-
13

LI-7 BOARD

ZS-3 BOARD

GS-4 BOARD

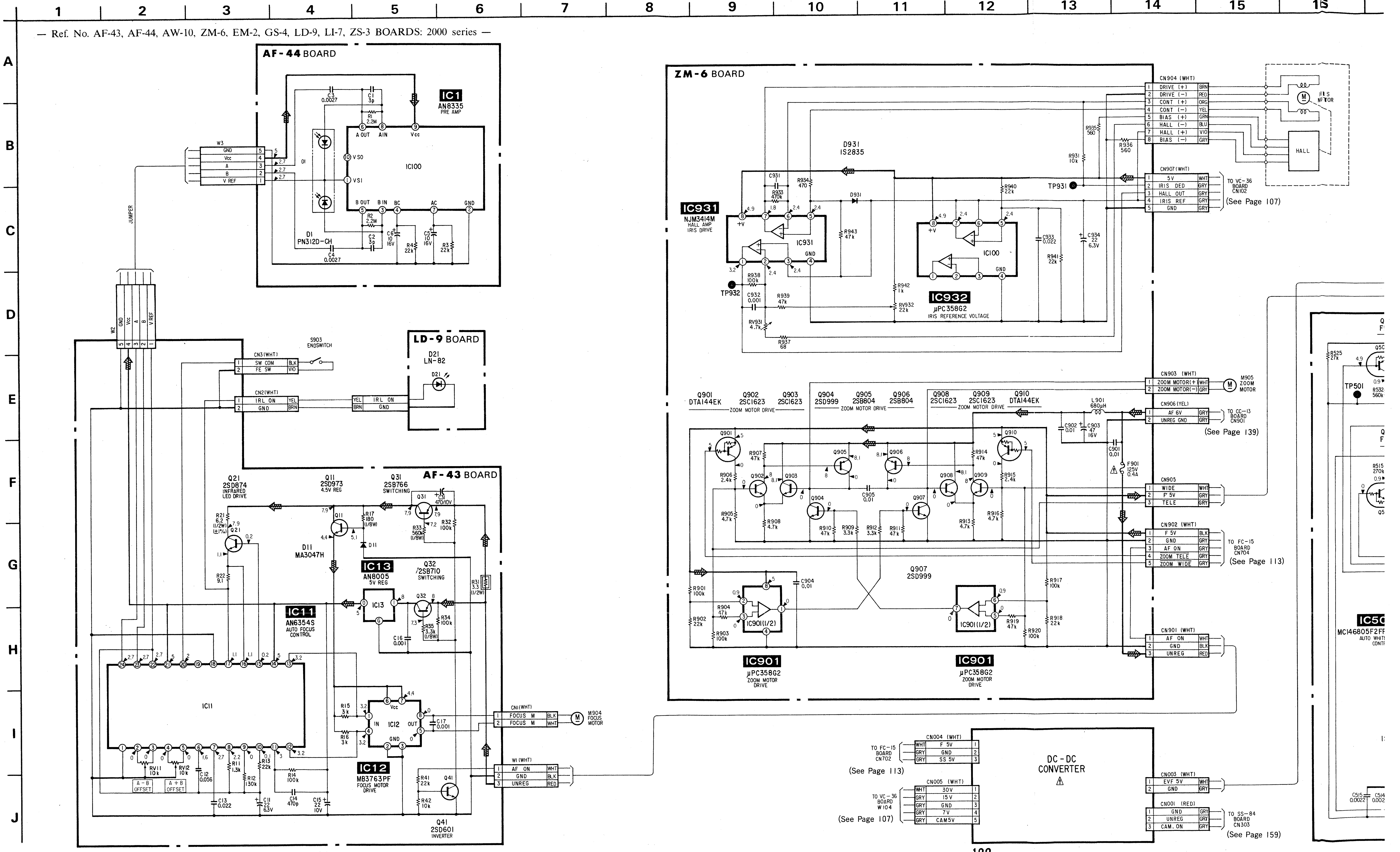


J961
LITHIUM BATTERY
1-626-271-
11
CN951
CN952
CN953
CN954
1-626-273-
11
T
W
S904
ZOOM SWITCH
S921
START/STOP
1-626-272-
11

CAMERA CAMERA

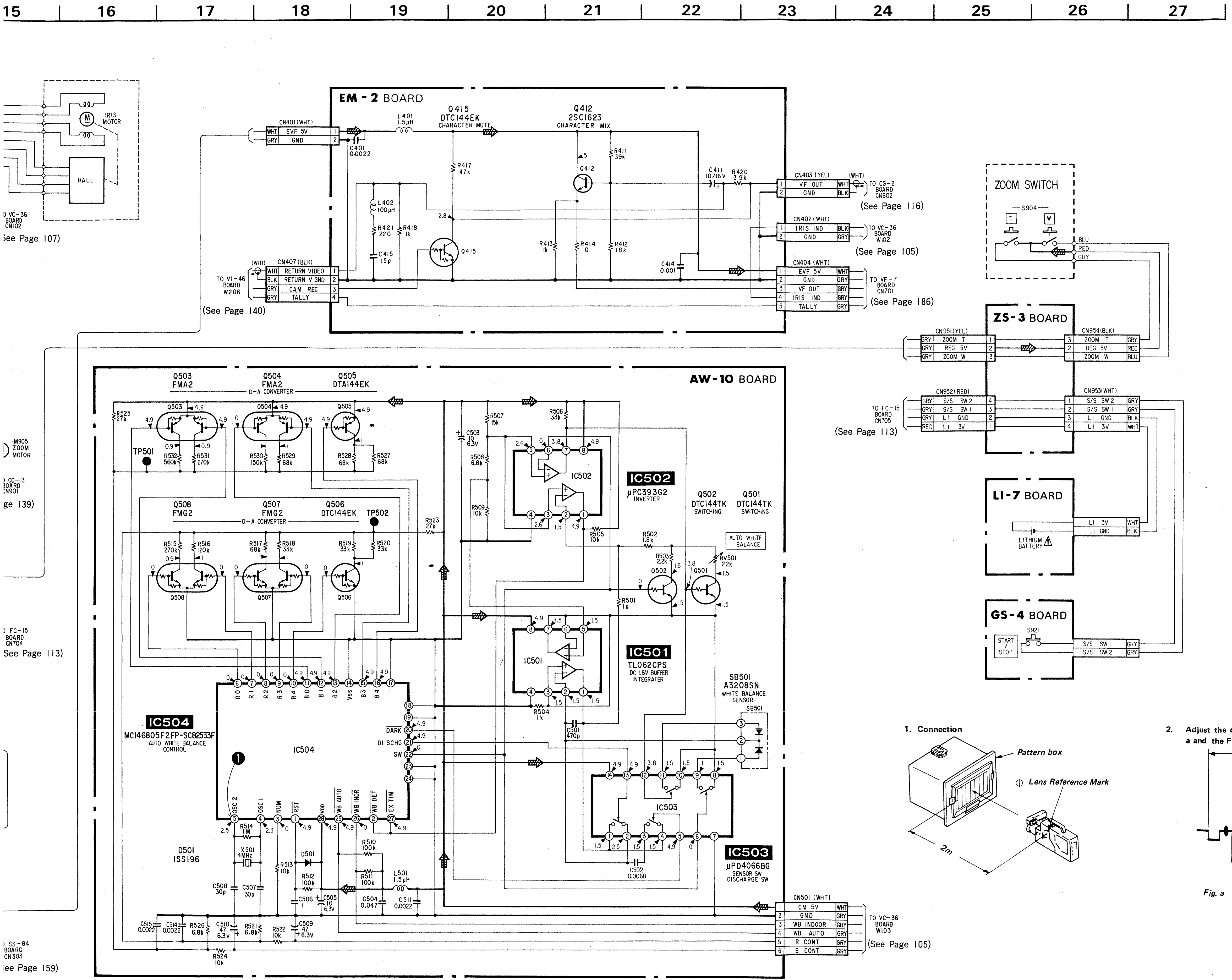
AF-43 (AUTO FOCUS CONTROL), AF-44 (AUTO FOCUS SENSOR), AW-10 (AUTO WHITEBALANCE), ZM-6 (ZOOM MOTOR DRIVE, IRIS CONTROL), EM-2 (VIEW FINDER RELAY), GS-4 (START/STOP SWITCH), ZS-3 (START, STOP/ZOOM SW

— Ref. No. AF-43, AF-44, AW-10, ZM-6, EM-2, GS-4, LD-9, LI-7, ZS-3 BOARDS: 2000 series —



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
AF-44 BOARD
IC1
AN8335
PRE AMP
IC100
A OUT
AIN
Vcc
V SO
VSI
B OUT
B IN
BC
AC
GND
D1
PN312D-CH
C3 0.0027
C1 3p
R1 2.2M
R2 2.2M
C2 3p
C4 0.0027
C6 10 16V
R4 22k
C5 10 16V
R3 22k
W3
GND
Vcc
A
B
V REF
JUMPER
W2
S903
ENDSWITCH
CN3 (WHT)
SW COM
FE SW
CN2 (WHT)
IRL ON
GND
LD-9 BOARD
D21
LN-82
AF-43 BOARD
Q21
2SD874
INFRARED LED DRIVE
Q11
2SD973
4.5V REG
Q31
2SB766
SWITCHING
D11
MA3047H
IC13
AN8005
5V REG
Q32
2SB710
SWITCHING
IC11
AN6354S
AUTO FOCUS CONTROL
IC12
MB3763PF
FOCUS MOTOR DRIVE
Q41
2SD601
INVERTER
RV11 10k
RV12 10k
A-B OFFSET
A+B OFFSET
CN1 (WHT)
FOCUS M
M904
FOCUS MOTOR
W1 (WHT)
AF ON
GND
UNREG
ZM-6 BOARD
IC931
NJM3414M
HALL AMP
IRIS DRIVE
IC932
μPC358G2
IRIS REFERENCE VOLTAGE
D931
1S2835
TP931
TP932
RV931 4.7k
RV932 22k
CN904 (WHT)
DRIVE (+)
DRIVE (−)
CONT (+)
CONT (−)
BIAS (+)
HALL (−)
HALL (+)
BIAS (−)
IRIS MOTOR
HALL
CN907 (WHT)
5V
IRIS DED
HALL OUT
IRIS REF
GND
TO VC-36 BOARD CN102
(See Page 107)
Q901 DTA144EK
Q902 2SC1623
Q903 2SC1623
ZOOM MOTOR DRIVE
Q904 2SD999
Q905 2SB804
Q906 2SB804
Q908 2SC1623
Q909 2SC1623
Q910 DTA144EK
Q907 2SD999
L901 680μH
F901 125V 0.4A
CN903 (WHT)
ZOOM MOTOR(+)
ZOOM MOTOR(−)
M905
ZOOM MOTOR
CN906 (YEL)
AF 6V
UNREG GND
TO CC-13 BOARD CN901
(See Page 139)
CN905
WIDE
F 5V
TELE
CN902 (WHT)
F 5V
GND
AF ON
ZOOM TELE
ZOOM WIDE
TO FC-15 BOARD CN704
(See Page 113)
CN901 (WHT)
AF ON
GND
UNREG
IC901
μPC358G2
ZOOM MOTOR DRIVE
IC901(1/2)
CN004 (WHT)
F 5V
GND
SS 5V
TO FC-15 BOARD CN702
(See Page 113)
CN005 (WHT)
30V
15V
GND
7V
CAM5V
TO VC-36 BOARD W104
(See Page 107)
DC-DC CONVERTER
CN003 (WHT)
EVF 5V
GND
CN001 (RED)
GND
UNREG
CAM. ON
TO SS-84 BOARD CN303
(See Page 159)
TP501
IC50
MC146805F2F
AUTO WHITE CONT

(START, STOP/ZOOM SWITCH RELAY), LI-7 (LITHIUM BATTERY STORAGE), LD-9 (INFRARED EMISSION) SCHEMATIC DIAGRAM


15
16
17
18
19
20
21
22
23
24
25
26
27
IRIS MOTOR
HALL
TO VC-36 BOARD CN102
(See Page 107)
EM-2 BOARD
CN401 (WHT)
EVF 5V
GND
L401 1.5μH
C401 0.0022
Q415 DTC144EK CHARACTER MUTE
Q412 2SC1623 CHARACTER MIX
R417 47k
R411 39k
L402 100μH
R421 220
R418 1k
C415 15p
R413 1k
R414 0
R412 18k
C411 10/16V
R420 3.9k
C414 0.001
CN403 (YEL)
VF OUT
GND
TO CG-2 BOARD CN802
(See Page 116)
CN402 (WHT)
IRIS IND
GND
TO VC-36 BOARD W102
(See Page 105)
CN404 (WHT)
EVF 5V
GND
VF OUT
IRIS IND
TALLY
TO VF-7 BOARD CN701
(See Page 186)
CN407 (BLK)
RETURN VIDEO
RETURN V GND
CAM REC
TALLY
TO VI-46 BOARD W206
(See Page 140)
M905 ZOOM MOTOR
TO CC-13 BOARD CN901
(See Page 139)
TO FC-15 BOARD CN704
(See Page 113)
TO SS-84 BOARD CN303
(See Page 159)
AW-10 BOARD
Q503 FMA2
Q504 FMA2
Q505 DTA144EK
D-A CONVERTER
TP501
R525 27k
R532 560k
R531 270k
R530 150k
R529 68k
R528 68k
R527 68k
Q508 FMG2
Q507 FMG2
Q506 DTC144EK
TP502
R515 270k
R516 120k
R517 68k
R518 33k
R519 33k
R520 33k
R523 27k
C503 10 6.3V
R507 15k
R506 33k
R508 6.8k
R509 10k
IC502
μPC393G2 INVERTER
R505 10k
R502 1.8k
R503 2.2k
Q502 DTC144TK SWITCHING
Q501 DTC144TK SWITCHING
AUTO WHITE BALANCE
RV501 22k
R501 1k
IC501
TL062CPS DC 1.6V BUFFER INTEGRATER
R504 1k
C501 470p
SB501 A3208SN WHITE BALANCE SENSOR
IC504
MC146805F2FP-SC82533F AUTO WHITE BALANCE CONTROL
DARK
DI SCHG
SW
OSC 2
OSC 1
NUM
RST
WB AUTO
WB INDOR
WB DET
EX TIM
IC503
μPD4066BG SENSOR SW DISCHARGE SW
C502 0.0068
D501 1SS196
R514 1M
X501 4MHz
R513 10k
D501
R512 100k
R510 100k
R511 100k
L501 1.5μH
C508 30p
C507 30p
C506 1
C505 10 6.3V
C504 0.047
C511 0.0022
C515 0.0022
C514 0.0022
R526 6.8k
C510 47 6.3V
R521 6.8k
R522 10k
C509 47 6.3V
R524 10k
CN501 (WHT)
CM 5V
GND
WB INDOOR
WB AUTO
R CONT
B CONT
TO VC-36 BOARD W103
(See Page 105)
ZOOM SWITCH
S904
T
W
BLU
RED
GRY
ZS-3 BOARD
CN951 (YEL)
ZOOM T
REG 5V
ZOOM W
CN954 (BLK)
CN952 (RED)
S/S SW 2
S/S SW 1
LI GND
LI 3V
CN953 (WHT)
TO FC-15 BOARD CN705
(See Page 113)
LI-7 BOARD
LITHIUM BATTERY
GS-4 BOARD
S921
START STOP
WHT
GRY
BLK
YEL

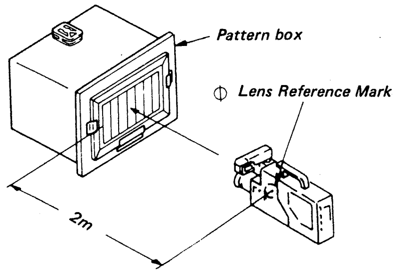
Note (Schematic Diagram)

- Caution to be exercised when replacing chip components
  Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel disignation.
- ▭ : adjustment for repair.
- ▬ : B + line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) Voltage are DC between ground and measurement point.
  (The tester used is the digital multimeter DC10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).
- The ● number is the reference number in the waveform diagram.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

1. Connection


Pattern box
Lens Reference Mark
2m

2. Adjust the distance so that the output w form of Fig. a and the Fig. b can be obtain.

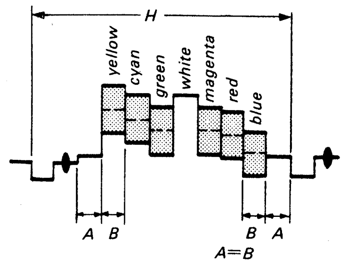

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A=B

Fig. a Camera output waveform of TP345 on VC-37 board.

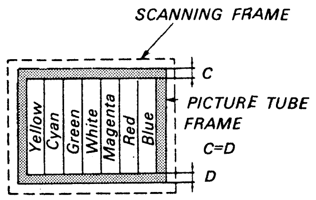

SCANNING FRAME
Yellow
Cyan
Green
White
Magenta
Red
Blue
C
PICTURE TUBE FRAME
C=D
D

Fig. b Picture of TV monitor screen

A

B

C

D

E

F

G

H

I

J

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- The ● number is the reference number in the waveform diagram.
- Digital transistor (RP-57: Q101, 107, 108, 120, 124, 132) transistor with resistors.
  Refer to the RP-57 board schematic diagrams for digital transistor.

Note

Conductor side:	**Parts on the conductor side being seen from the conductor are stated.**
Component side:	**Parts on the component side being seen from the component are stated.**

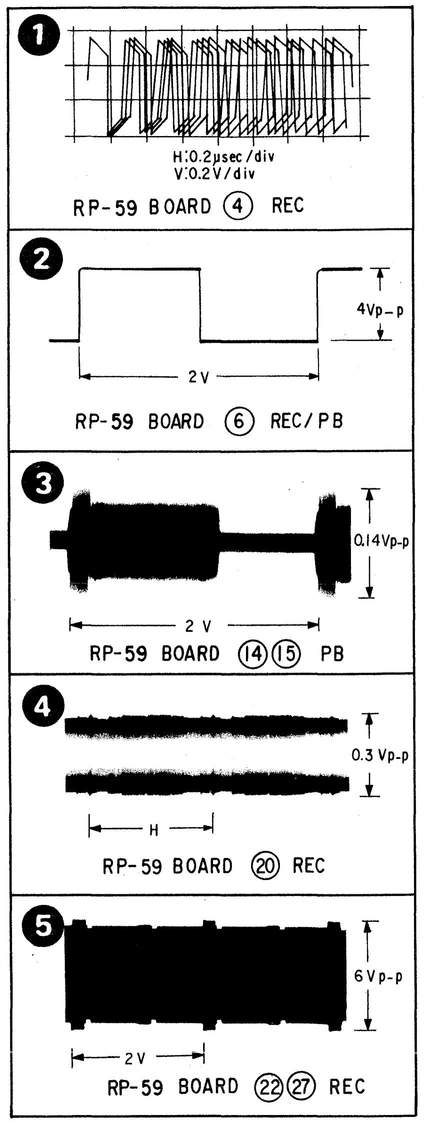
Regarding color indication of pattern

- **Pattern being seen in the state from the surface side are indicated in gray pattern.**
- **Pattern being seen in the state of the rear surface side is indicated in green pattern.**

RP-57 (VIDEO/AUDIO RF SIGNAL PROCESS, FLYING ERASE OSC) PRINTED WIRING BOARD

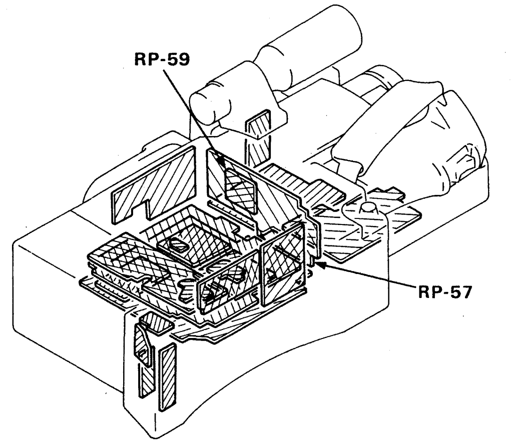
— Ref. No. RP-57 BOARD: 3000 series —

RP-57 BOARD (VIDEO)



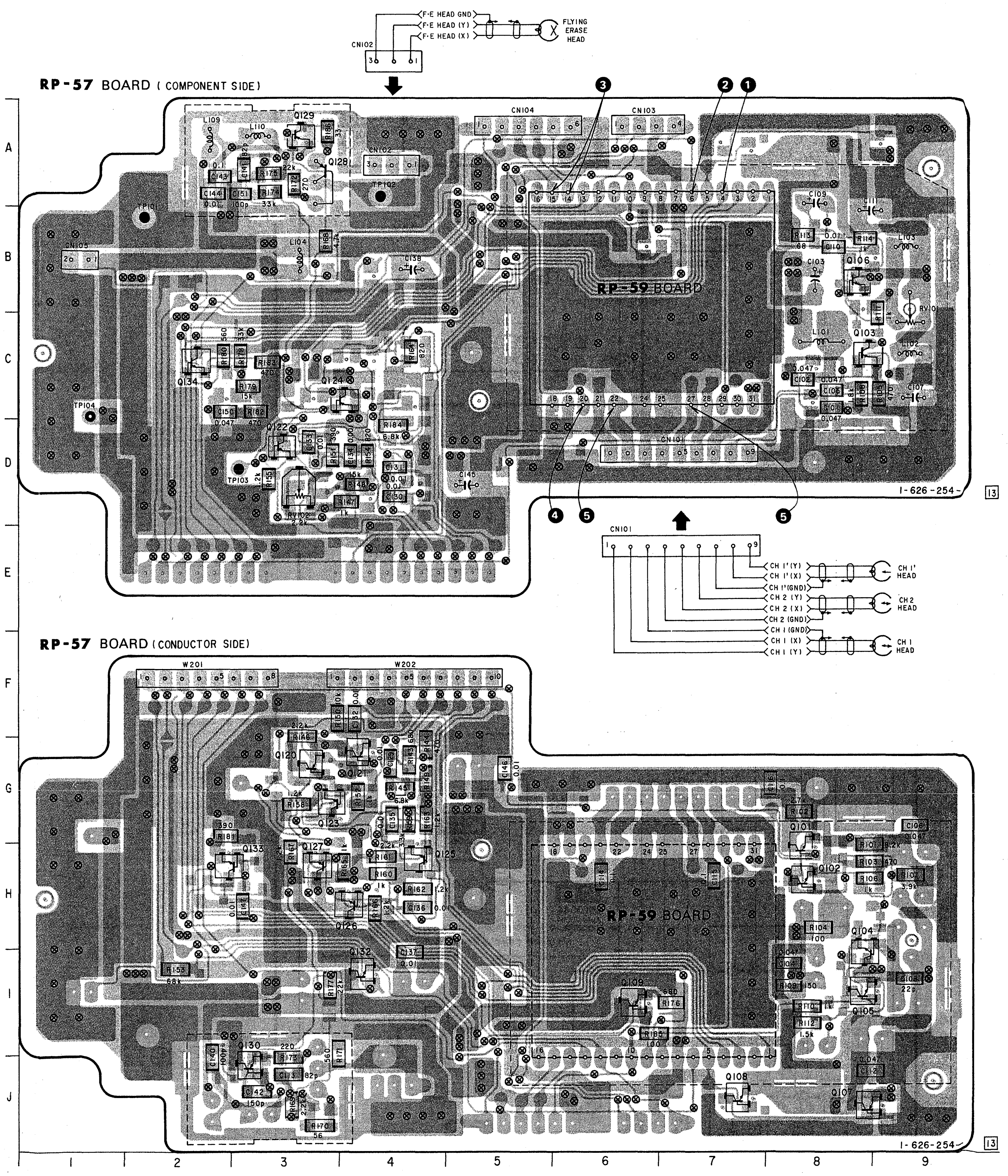
RP-57 BOARD

CN101	D-7
CN102	A-4
CN103	A-6
CN104	A-5
CN105	B-1
Q101	H-8
Q102	H-8
Q103	C-8
Q104	I-8
Q105	I-8
Q106	B-8
Q107	J-8
Q108	J-7
Q109	I-6
Q120	G-3
Q121	G-4
Q122	D-3
Q123	G-3
Q124	C-4
Q125	H-4
Q126	H-4
Q127	H-3
Q128	A-3
Q129	A-3
Q130	J-3
Q132	I-4
Q133	H-2
Q134	C-3
RV101	C-9
RV102	D-3
TP101	B-2
TP102	A-4
TP103	D-3
TP104	C-1



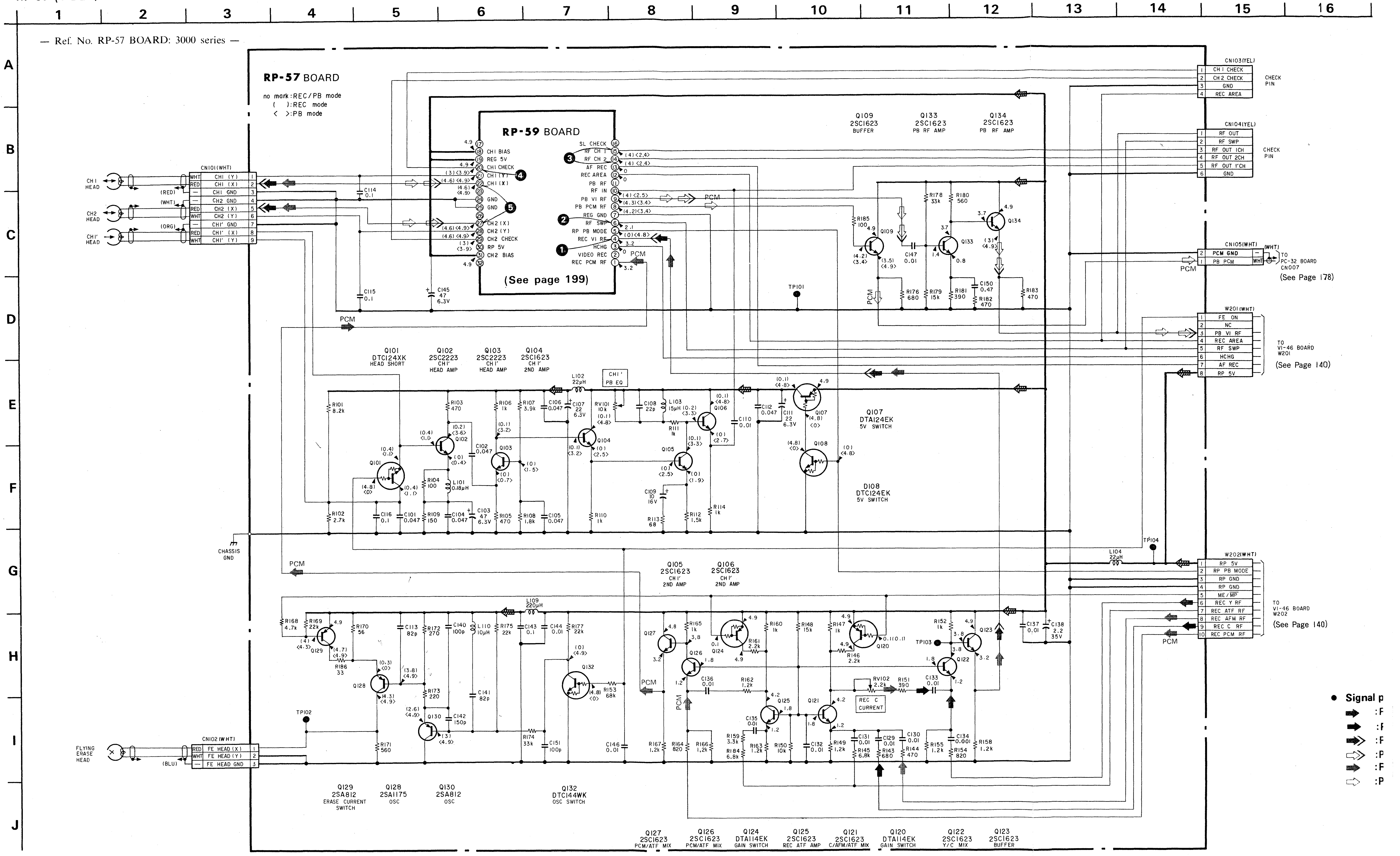
RP-57 BOARD (COMPONENT SIDE)

RP-57 BOARD (CONDUCTOR SIDE)

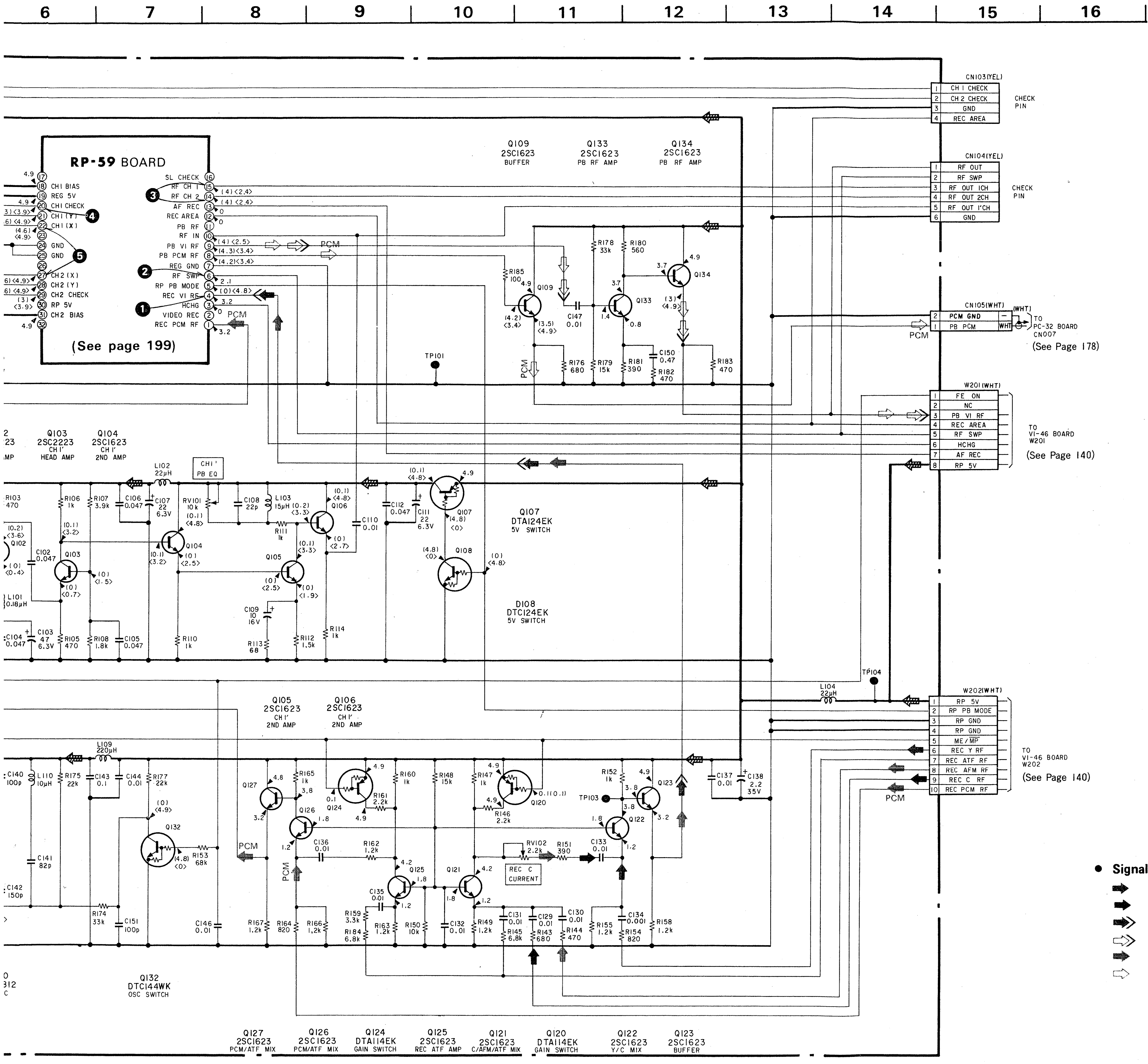

F·E HEAD GND
F·E HEAD (Y)
F·E HEAD (X)
FLYING ERASE HEAD
CN102
3
1
❸
❷
❶
CN104
CN103
A
B
C
D
E
F
G
H
I
J
RP-59 BOARD
TP101
TP102
TP103
TP104
CN105
CN101
1-626-254-
13
❹
❺
❺
9
CH 1'(Y)
CH 1'(X)
CH 1'(GND)
CH 2 (Y)
CH 2 (X)
CH 2 (GND)
CH 1 (GND)
CH 1 (X)
CH 1 (Y)
CH 1' HEAD
CH 2 HEAD
CH 1 HEAD
W201
W202
1
2
3
4
5
6
7
8
9

RP-57 (VIDEO/AUDIO RF SIGNAL PROCESS, FLYING ERASE OSC) SCHEMATIC DIAGRAM

— Ref. No. RP-57 BOARD: 3000 series —


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
RP-57 BOARD
no mark: REC/PB mode
( ): REC mode
< >: PB mode
RP-59 BOARD
(See page 199)
CN101 (WHT)
CH1 HEAD
CH2 HEAD
CH1' HEAD
CHASSIS GND
FLYING ERASE HEAD
CN102 (WHT)
CN103 (YEL)
CHECK PIN
CN104 (YEL)
CHECK PIN
CN105 (WHT)
TO PC-32 BOARD CN007
(See Page 178)
W201 (WHT)
TO VI-46 BOARD W201
(See Page 140)
W202 (WHT)
TO VI-46 BOARD W202
(See Page 140)
Q101 DTC124XK HEAD SHORT
Q102 2SC2223 CH1' HEAD AMP
Q103 2SC2223 CH1' HEAD AMP
Q104 2SC1623 CH1' 2ND AMP
Q105 2SC1623 CH1' 2ND AMP
Q106 2SC1623 CH1' 2ND AMP
Q107 DTA124EK 5V SWITCH
D108 DTC124EK 5V SWITCH
Q109 2SC1623 BUFFER
Q133 2SC1623 PB RF AMP
Q134 2SC1623 PB RF AMP
Q129 2SA812 ERASE CURRENT SWITCH
Q128 2SA1175 OSC
Q130 2SA812 OSC
Q132 DTC144WK OSC SWITCH
Q127 2SC1623 PCM/ATF MIX
Q126 2SC1623 PCM/ATF MIX
Q124 DTA114EK GAIN SWITCH
Q125 2SC1623 REC ATF AMP
Q121 2SC1623 C/AFM/ATF MIX
Q120 DTA114EK GAIN SWITCH
Q122 2SC1623 Y/C MIX
Q123 2SC1623 BUFFER
CH1' PB EQ
REC C CURRENT
TP101
TP102
TP103
TP104
PCM
● Signal p

TIC DIAGRAM


6
7
8
9
10
11
12
13
14
15
16
RP-59 BOARD
(See page 199)
CH1 BIAS
REG 5V
CH1 CHECK
CH1 (Y)
CH1 (X)
GND
GND
CH2 (X)
CH2 (Y)
CH2 CHECK
RP 5V
CH2 BIAS
SL CHECK
RF CH 1
RF CH 2
AF REC
REC AREA
PB RF
RF IN
PB VI RF
PB PCM RF
REG GND
RF SWP
RP PB MODE
REC VI RF
HCHG
VIDEO REC
REC PCM RF
PCM
CN103(YEL)
CH 1 CHECK
CH 2 CHECK
GND
REC AREA
CHECK PIN
CN104(YEL)
RF OUT
RF SWP
RF OUT ICH
RF OUT 2CH
RF OUT I'CH
GND
CHECK PIN
CN105(WHT)
PCM GND
PB PCM
TO PC-32 BOARD CN007
(See Page 178)
W201(WHT)
FE ON
NC
PB VI RF
REC AREA
RF SWP
HCHG
AF REC
RP 5V
TO VI-46 BOARD W201
(See Page 140)
W202(WHT)
RP 5V
RP PB MODE
RP GND
RP GND
ME/MP
REC Y RF
REC ATF RF
REC AFM RF
REC C RF
REC PCM RF
TO VI-46 BOARD W202
(See Page 140)
Q109 2SC1623 BUFFER
Q133 2SC1623 PB RF AMP
Q134 2SC1623 PB RF AMP
Q103 2SC2223 CH I' HEAD AMP
Q104 2SC1623 CH I' 2ND AMP
CH I' PB EQ
Q107 DTA124EK 5V SWITCH
D108 DTC124EK 5V SWITCH
Q105 2SC1623 CH I' 2ND AMP
Q106 2SC1623 CH I' 2ND AMP
TP101
TP103
TP104
REC C CURRENT
Q132 DTC144WK OSC SWITCH
Q127 2SC1623 PCM/ATF MIX
Q126 2SC1623 PCM/ATF MIX
Q124 DTA114EK GAIN SWITCH
Q125 2SC1623 REC ATF AMP
Q121 2SC1623 C/AFM/ATF MIX
Q120 DTA114EK GAIN SWITCH
Q122 2SC1623 Y/C MIX
Q123 2SC1623 BUFFER

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel disignation.
- ☐ : adjustment for repair.
- ━ : B + line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ➡ indicates the I/O direction of B lines (+, −).
- The ● number is the reference number in the waveform diagram.

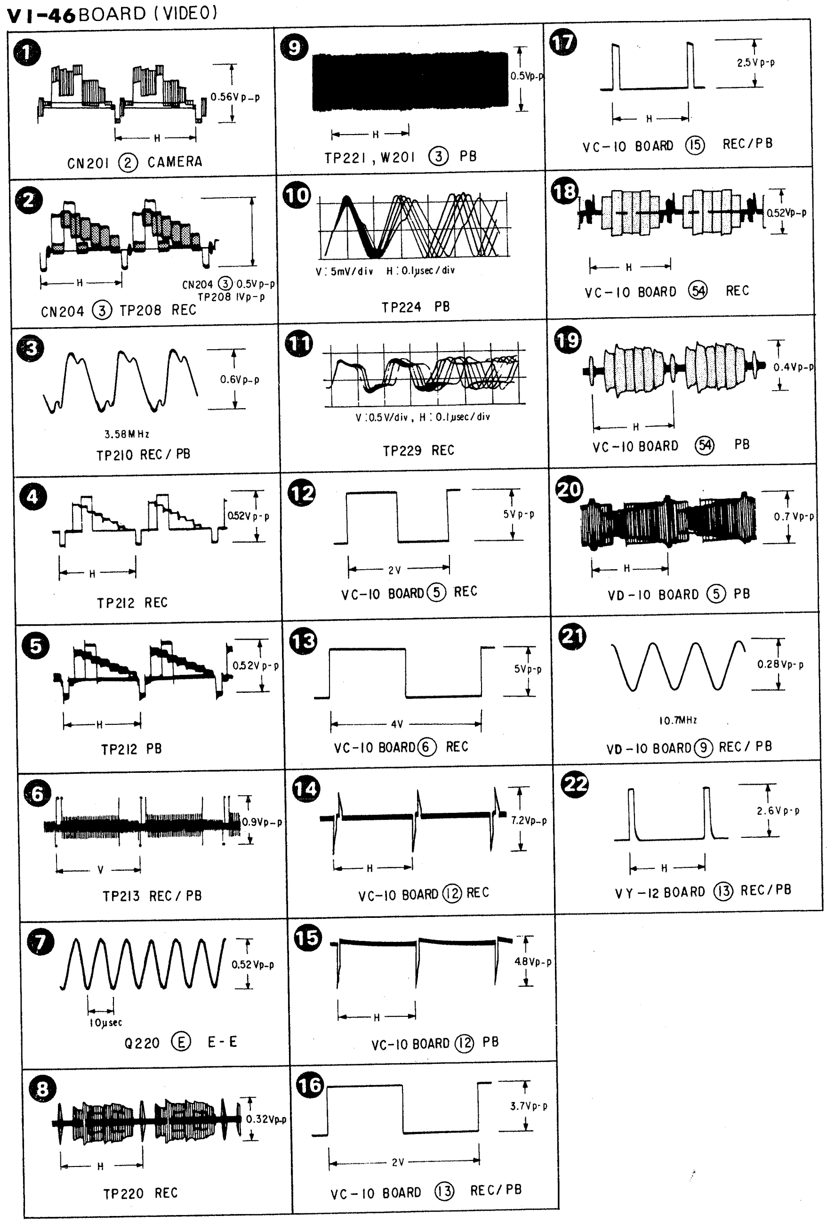
When indicating parts by reference number, please include the board name.

- **Signal path**
  - ➡ :REC Y SIGNAL
  - ➡ :REC CHROMA SIGNAL
  - ➡ :REC Y & CHROMA SIGNAL
  - ⇨ :PB Y & CHROMA SIGNAL
  - ➡ :REC AUDIO SIGNAL
  - ⇨ :PB AUDIO SIGNAL

VI-46 (VIDEO SIGNAL PROCESS), CC-13 (ACCESSORY INPUT/OUTPUT, SWITCHING POWER SUPPLY), SC-9 (VIDEO/AUDIO OUTPUT JACK), PJ-19 (VIDEO

— Ref. No. VI-46, CC-13, PJ-19 BOARDS: 3000 series, SC-9 BOARD: 4000 series —

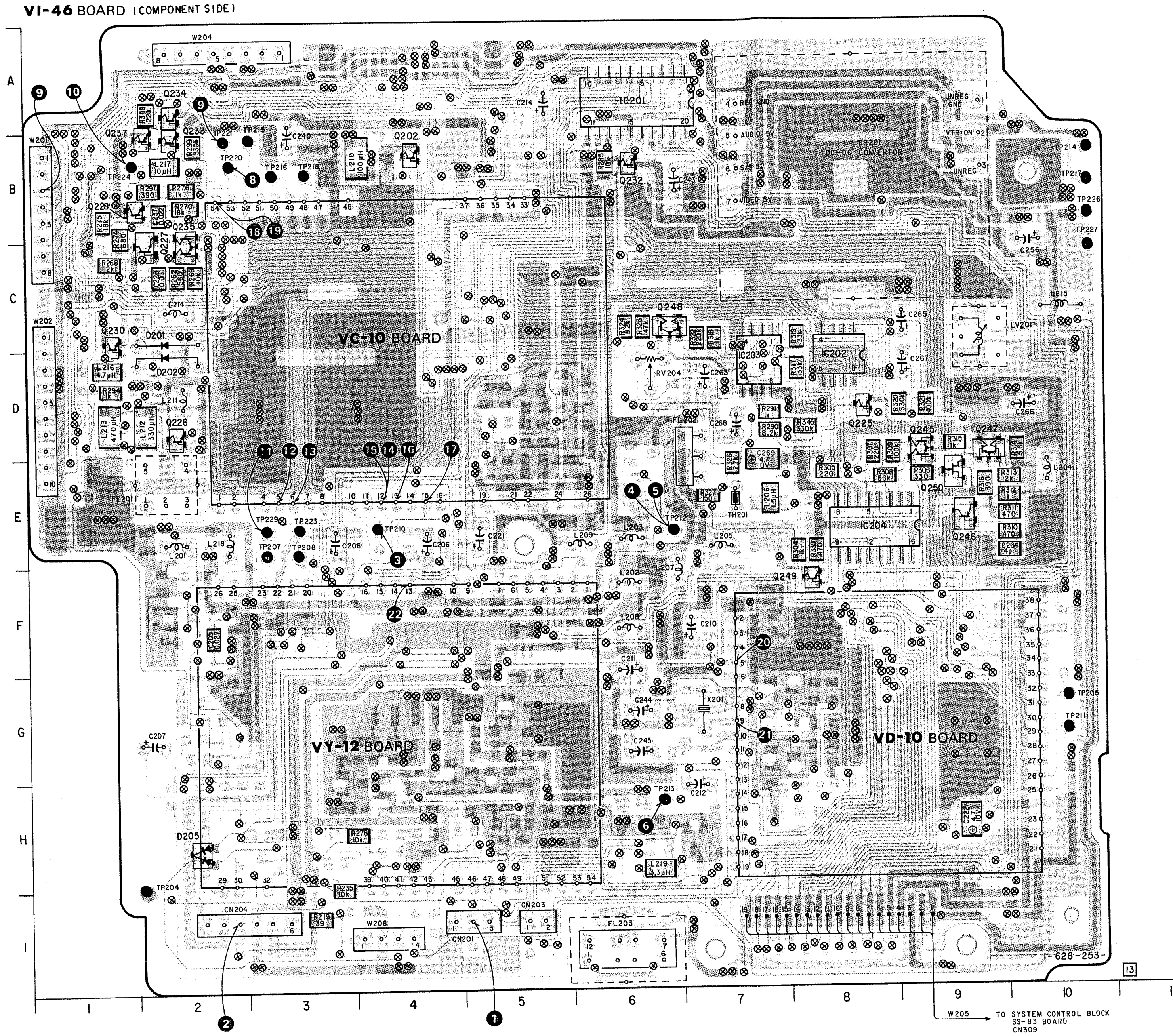
VI-46 BOARD (VIDEO)



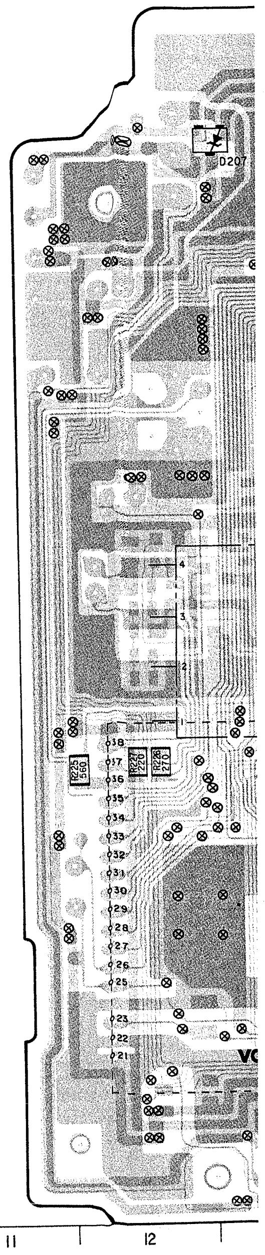
VI-46 BOARD

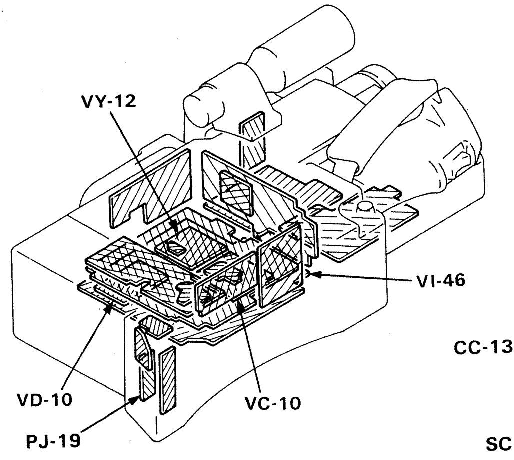
CN201	I-4
CN203	I-5
CN204	I-2
D201	C-2
D202	D-2
D203	D-17
D204	H-18
D205	H-2
D207	B-13
IC201	A-6
IC202	D-8
IC203	D-7
IC204	E-8
IC205	G-15
LV201	C-9
Q201	H-17
Q202	B-4
Q203	B-18
Q204	H-15
Q205	F-16
Q207	H-19
Q208	H-14
Q209	F-20
Q211	G-19
Q213	G-19
Q214	H-14
Q216	G-14
Q219	G-14
Q220	D-16
Q221	D-17
Q222	H-18
Q223	H-18
Q224	G-17
Q225	D-8
Q226	D-2
Q227	C-2
Q228	B-2
Q229	H-17
Q230	C-1
Q232	B-6
Q233	B-2
Q234	A-2
Q235	C-2
Q237	B-2
Q238	G-14
Q241	F-16
Q243	B-12
Q244	E-15
Q245	E-9
Q246	E-9
Q247	E-9
Q248	C-6
Q249	F-8
Q250	E-9
RV204	D-6
TP204	I-1
TP205	G-10
TP207	E-3
TP208	E-3
TP210	E-4
TP211	G-10
TP212	E-6
TP213	H-6
TP214	B-10
TP215	B-3
TP216	B-3
TP217	B-10
TP218	B-3
TP220	C-2
TP221	C-2
TP223	E-3
TP224	C-2
TP226	B-10
TP227	C-10
TP229	E-3
TP230	A-5
TP231	A-3

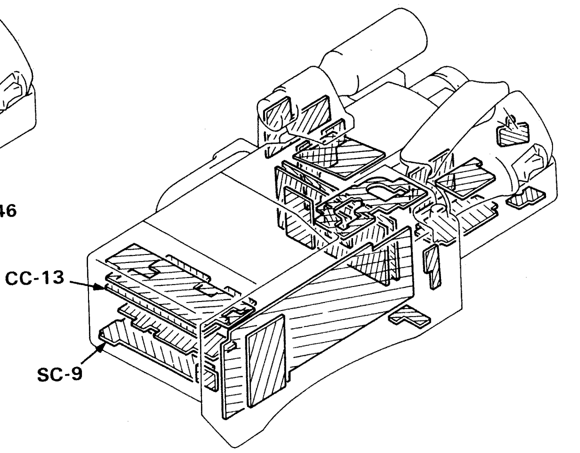
VI-46 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
W204
W201
W202
IC201
DC-DC CONVERTOR
VC-10 BOARD
VY-12 BOARD
VD-10 BOARD
IC202
IC203
IC204
LV201
RV204
X201
FL201
FL203
CN204
CN201
CN203
W206
D205
TP204
TP205
TP211
TP214
TP217
TP226
TP227
1-626-253-
13
W205
TO SYSTEM CONTROL BLOCK SS-93 BOARD CN309

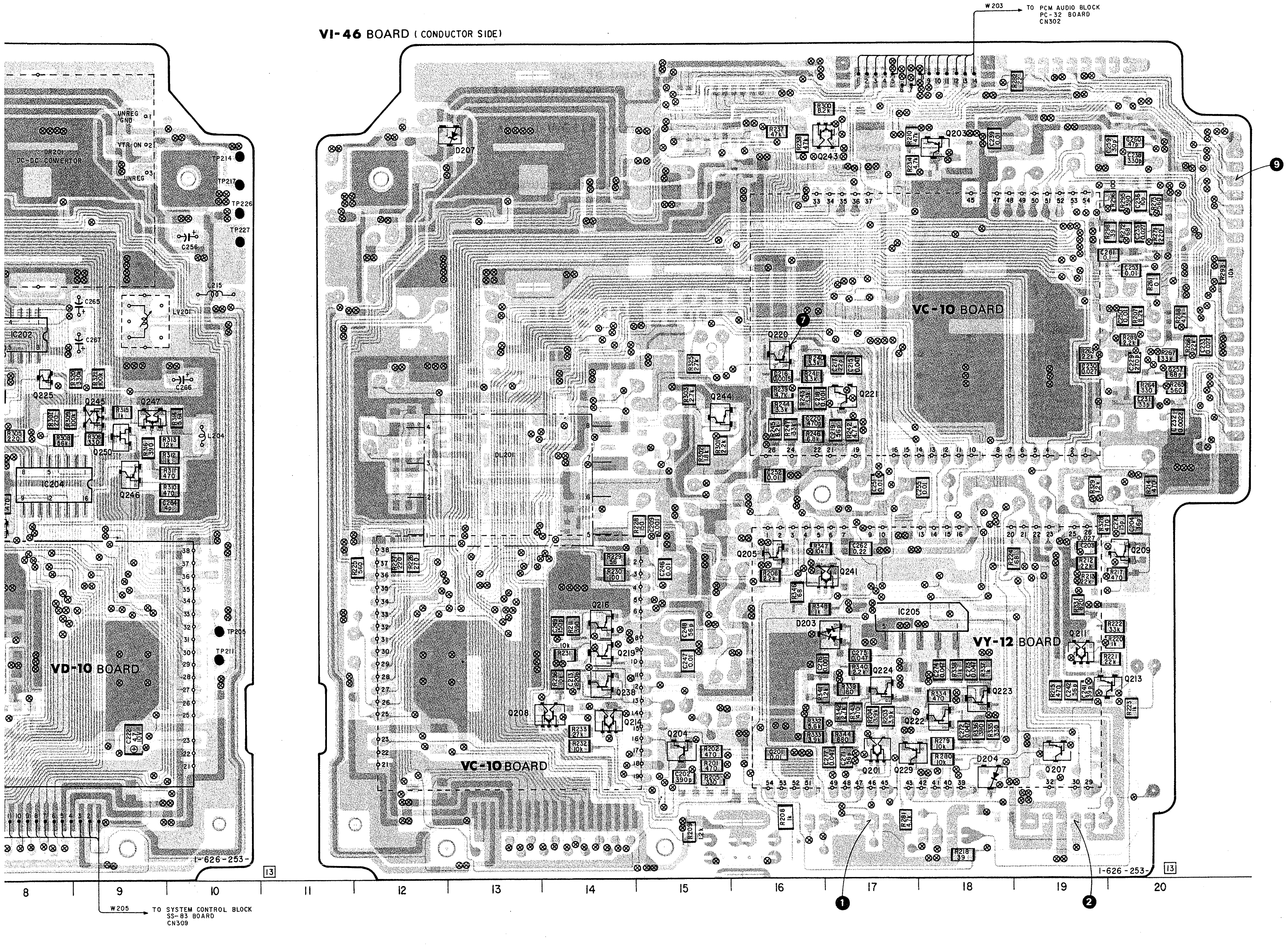
VI-46 BOARD (CONDUCTOR S




VY-12
VI-46
VD-10
VC-10
PJ-19

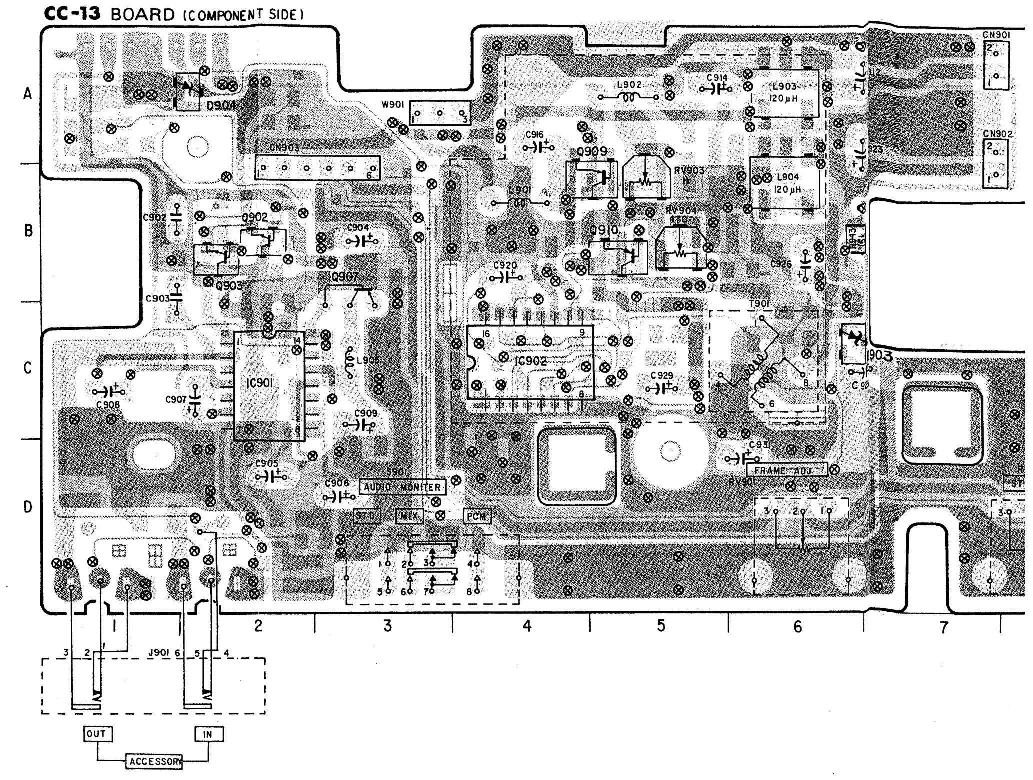


.Y), SC-9 (VIDEO/AUDIO OUTPUT JACK), PJ-19 (VIDEO/AUDIO INPUT JACK) PRINTED WIRING BOARD

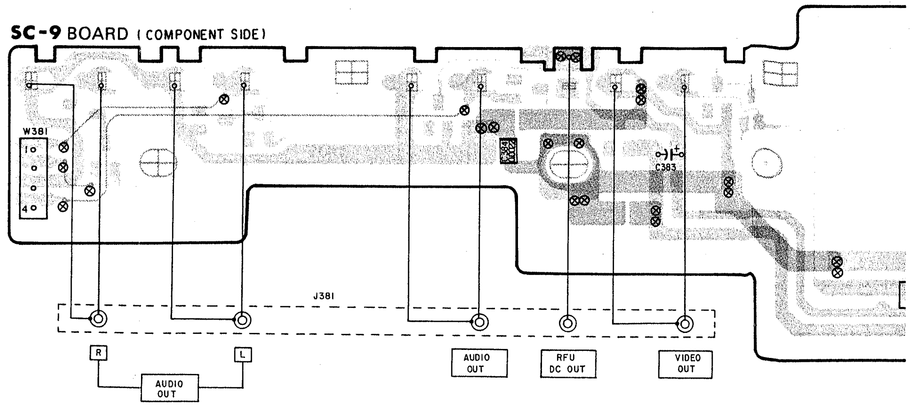

VI-46 BOARD (CONDUCTOR SIDE)

W203 → TO PCM AUDIO BLOCK PC-32 BOARD CN302
VC-10 BOARD
VD-10 BOARD
VY-12 BOARD
VC-10 BOARD
DC-DC CONVERTOR
IC202
IC204
IC205
DL201
Q207
Q203
Q243
Q220
Q221
Q244
Q205
Q241
Q209
Q218
Q219
Q214
Q238
Q208
Q204
Q224
Q223
Q222
Q201
Q229
Q211
Q213
Q225
Q245
Q247
Q250
Q246
D203
D204
D207
TP214
TP217
TP226
TP227
TP205
TP211
1-626-253-
13
8
9
10
11
12
13
14
15
16
17
18
19
20
W205 → TO SYSTEM CONTROL BLOCK SS-83 BOARD CN309
❶
❷
❼
❾

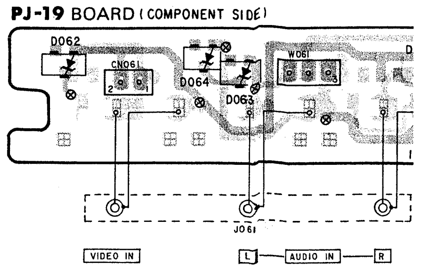
CC-13 BOARD	
CN901	A-7
CN902	A-7
CN903	B-2
CN904	A-2
CN906	A-1
D901	B-12
D902	B-11
D903	C-6
D904	A-2
IC901	C-2
IC902	C-4
Q901	A-16
Q902	B-2
Q903	B-2
Q904	B-15
Q905	B-15
Q906	B-15
Q907	B-3
Q908	C-15
Q909	B-5
Q910	B-5
Q911	C-12
Q912	C-11
RV901	D-6
RV902	D-8
RV903	B-5
RV904	B-5


CC-13 BOARD (COMPONENT SIDE)

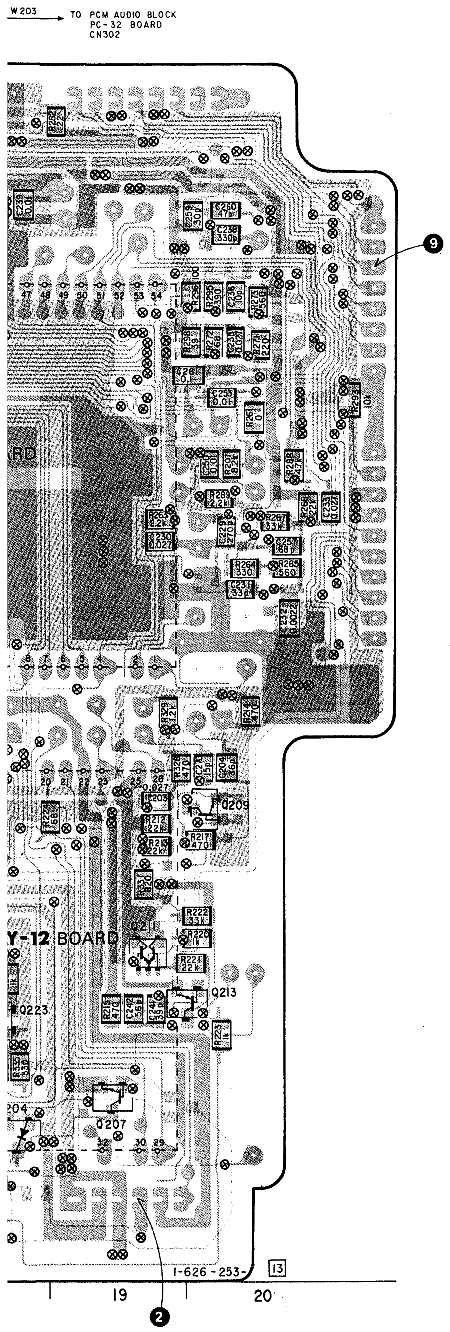
A
B
C
D
1
2
3
4
5
6
7
CN901
CN902
CN903
D904
W901
L902
L903 120µH
L904 120µH
C914
Q909
Q910
RV903
RV904
Q902
Q903
Q907
IC901
IC902
T901
FRAME ADJ
AUDIO MONITER
S901
SFO
MIX
PCM
J901
OUT
IN
ACCESSORY


SC-9 BOARD (COMPONENT SIDE)

W381
C383
J381
R
L
AUDIO OUT
AUDIO OUT
RFU DC OUT
VIDEO OUT


PJ-19 BOARD (COMPONENT SIDE)

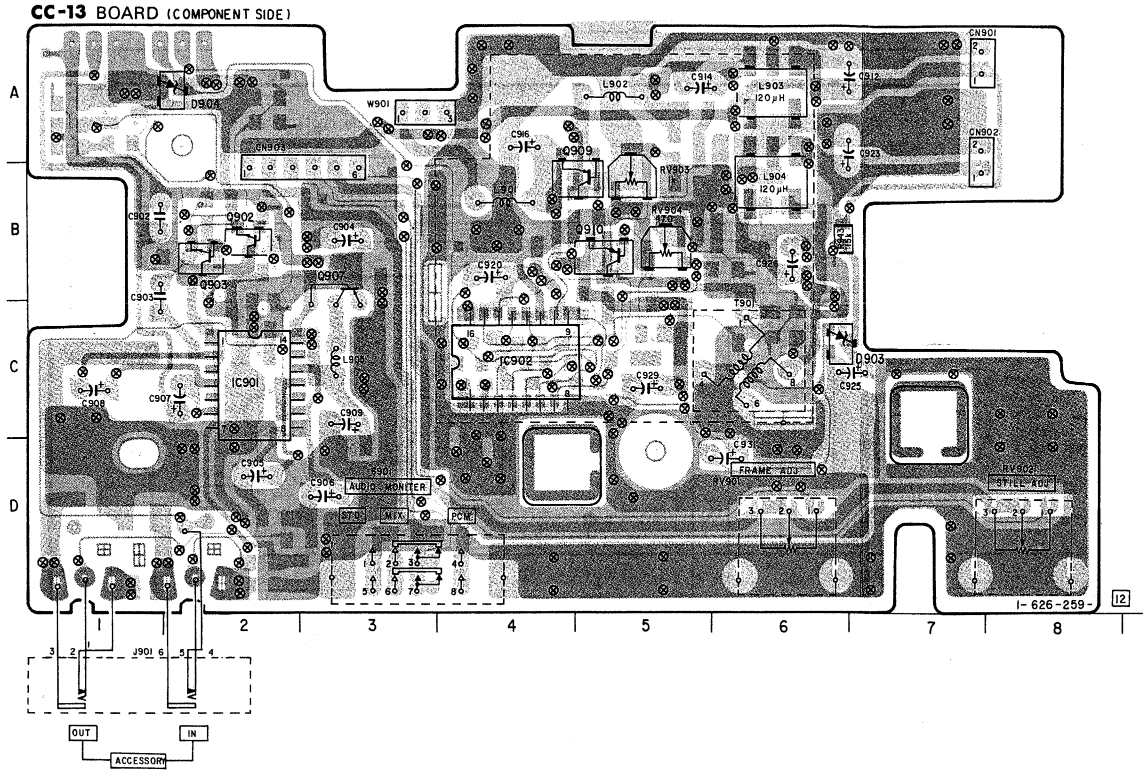
D062
CN061
D064
D063
W061
J061
VIDEO IN
L
AUDIO IN
R


W203 → TO PCM AUDIO BLOCK PC-32 BOARD CN302
Y-12 BOARD
Q207
Q209
Q211
Q213
Q223
1-626-253-
13
19
20
9
2

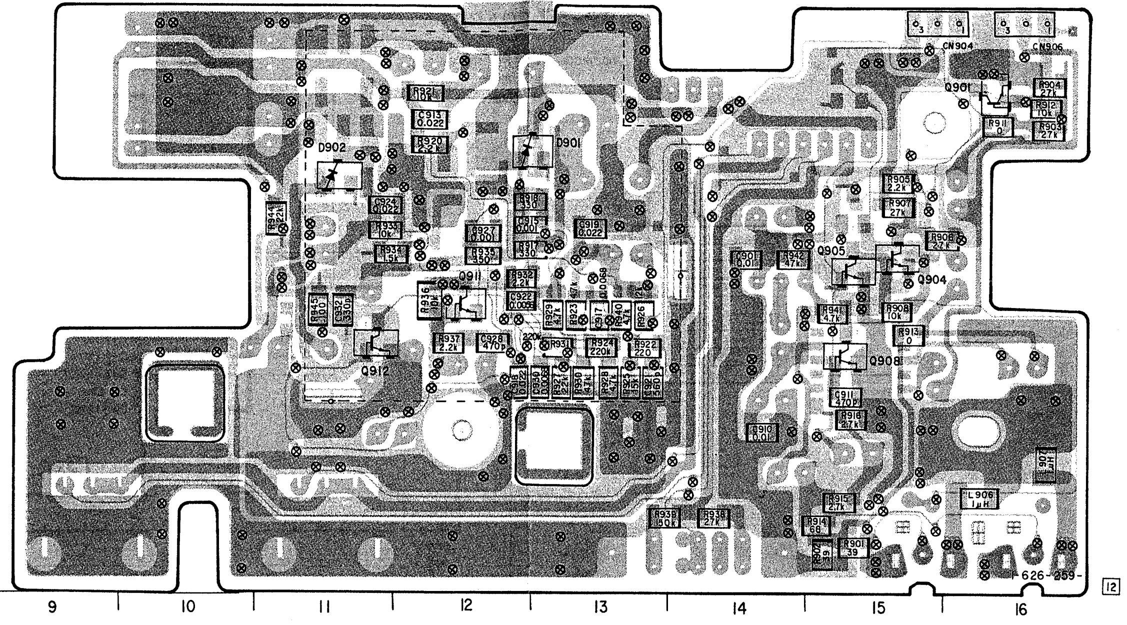
CC-13 BOARD

CN901	A-7
CN902	A-7
CN903	B-2
CN904	A-2
CN906	A-1
D901	B-12
D902	B-11
D903	C-6
D904	A-2
IC901	C-2
IC902	C-4
Q901	A-16
Q902	B-2
Q903	B-2
Q904	B-15
Q905	B-15
Q906	B-15
Q907	B-3
Q908	C-15
Q909	B-5
Q910	B-5
Q911	C-12
Q912	C-11
RV901	D-6
RV902	D-8
RV903	B-5
RV904	B-5

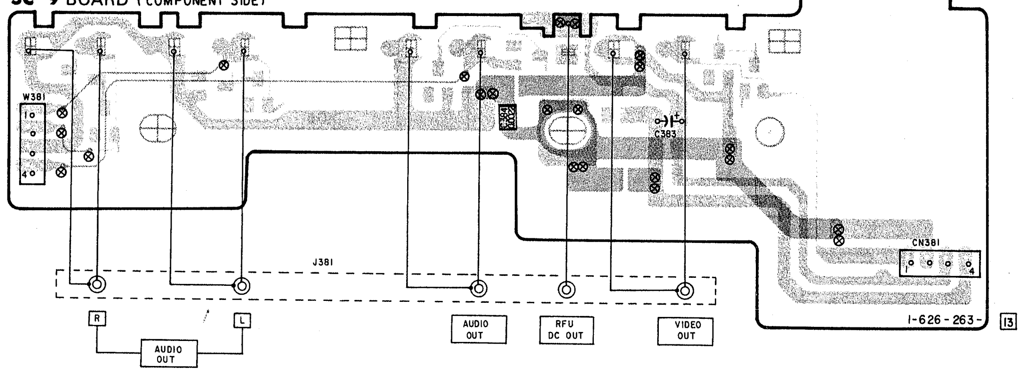
CC-13 BOARD (COMPONENT SIDE)


A
B
C
D
CN901
CN902
CN903
W901
D903
D904
IC901
IC902
Q902
Q903
Q907
Q909
Q910
L902
L903 120μH
L904 120μH
RV903
RV904
AUDIO MONITER
STD
MIX
PCM
FRAME ADJ
RV901
STILL ADJ
RV902
J901
OUT
IN
ACCESSORY
1-626-259-
12
1
2
3
4
5
6
7
8

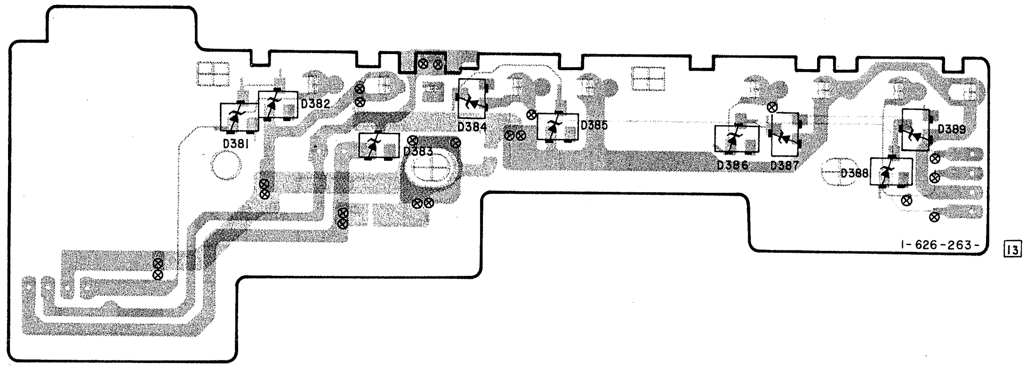
CC-13 BOARD (CONDUCTOR SIDE)


CN904
CN906
Q901
Q904
Q905
Q908
Q911
Q912
D901
D902
L906 1μH
1-626-259-
12
9
10
11
12
13
14
15
16

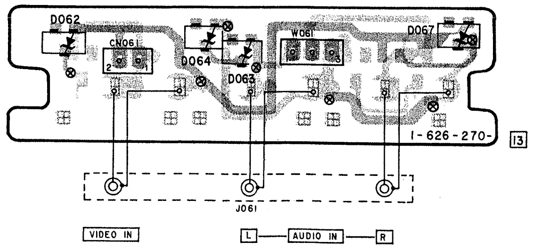
SC-9 BOARD (COMPONENT SIDE)


W381
C383
CN381
J381
R
L
AUDIO OUT
AUDIO OUT
RFU DC OUT
VIDEO OUT
1-626-263-
13

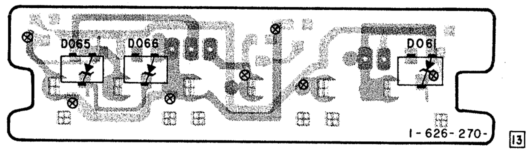
SC-9 BOARD (CONDUCTOR SIDE)


D381
D382
D383
D384
D385
D386
D387
D388
D389
1-626-263-
13

PJ-19 BOARD (COMPONENT SIDE)

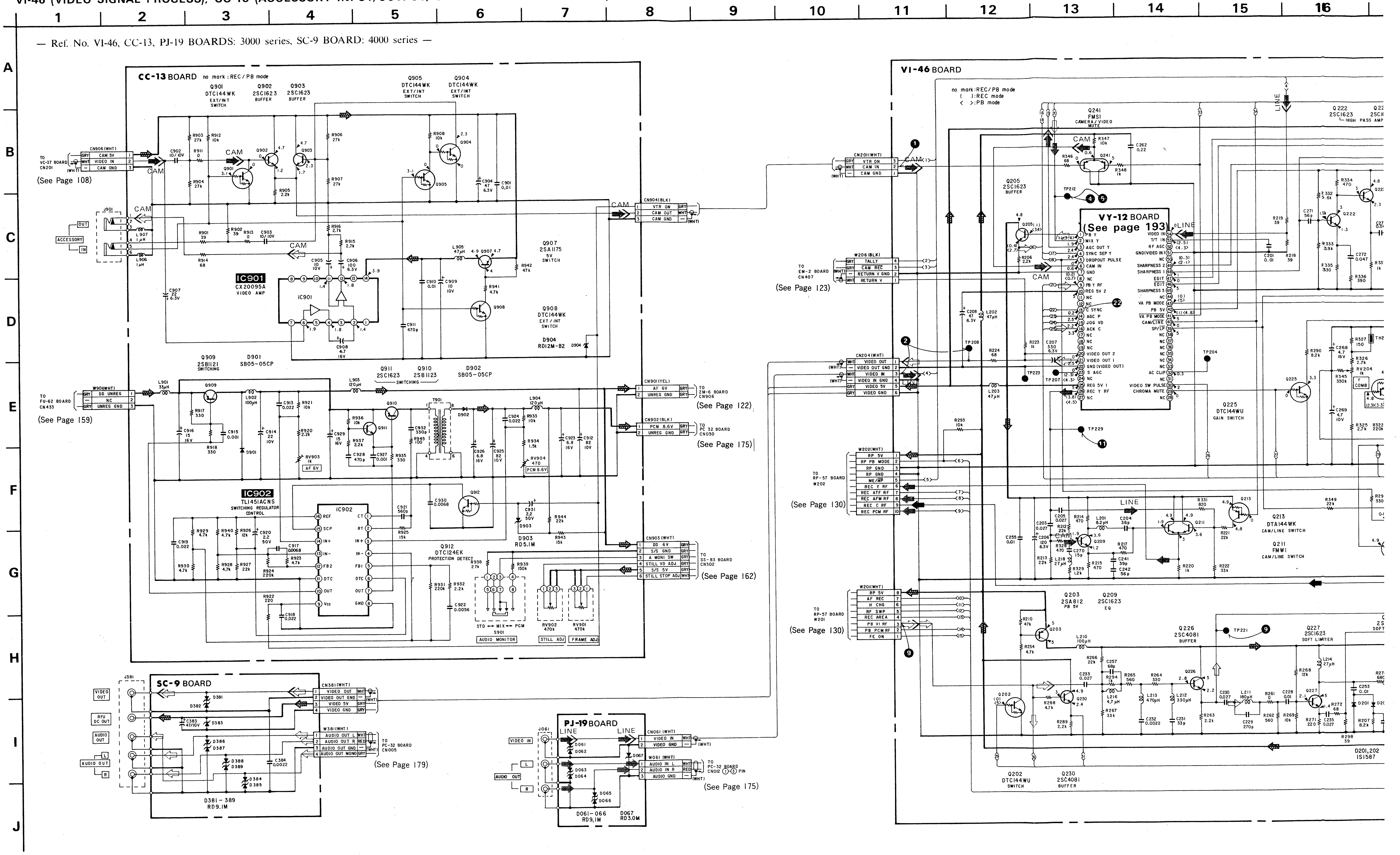

D062
CN061
D064
D063
W061
D067
J061
VIDEO IN
L
AUDIO IN
R
1-626-270-
13

PJ-19 BOARD (CONDUCTOR SIDE)

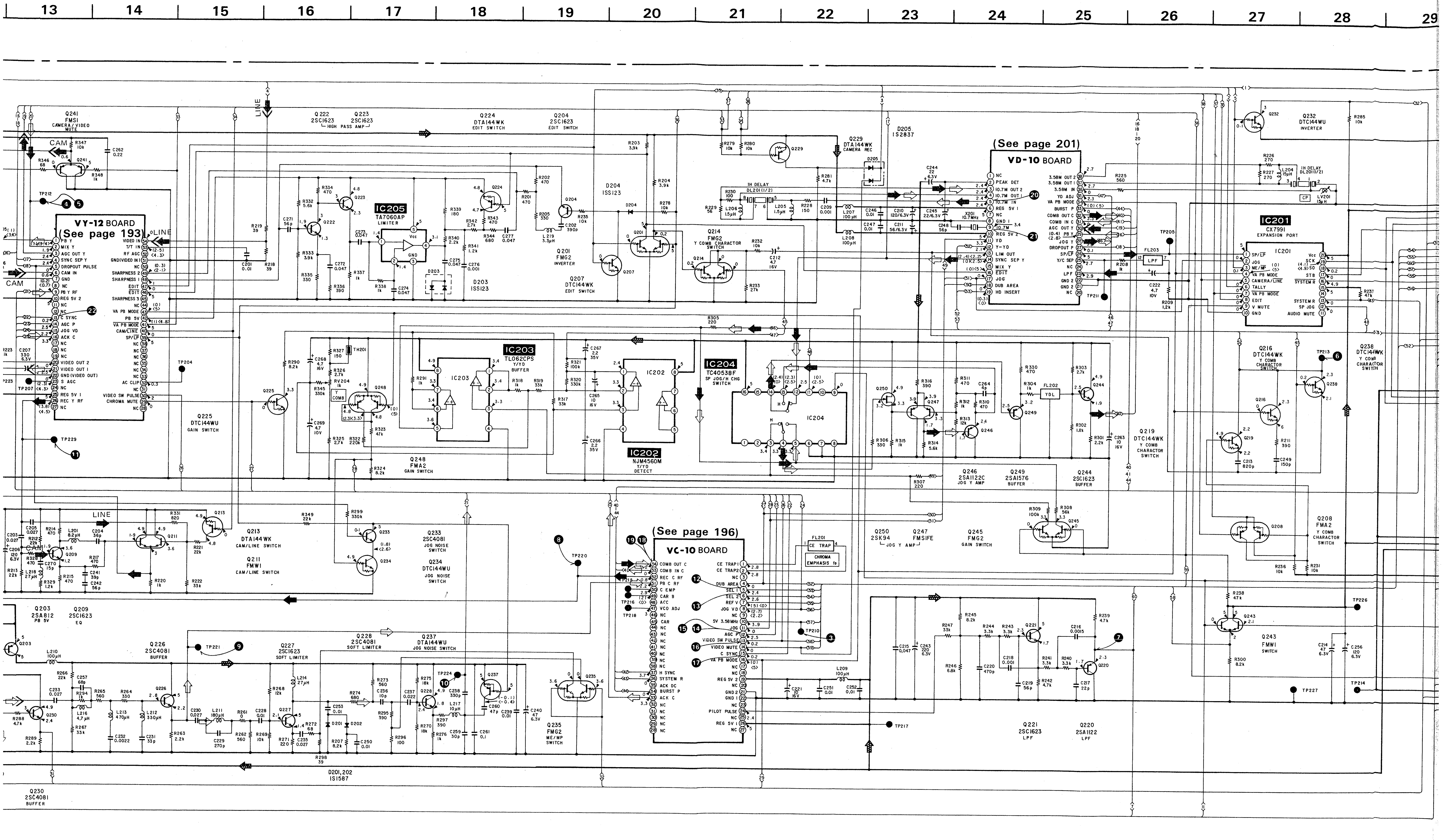

D065
D066
D061
1-626-270-
13

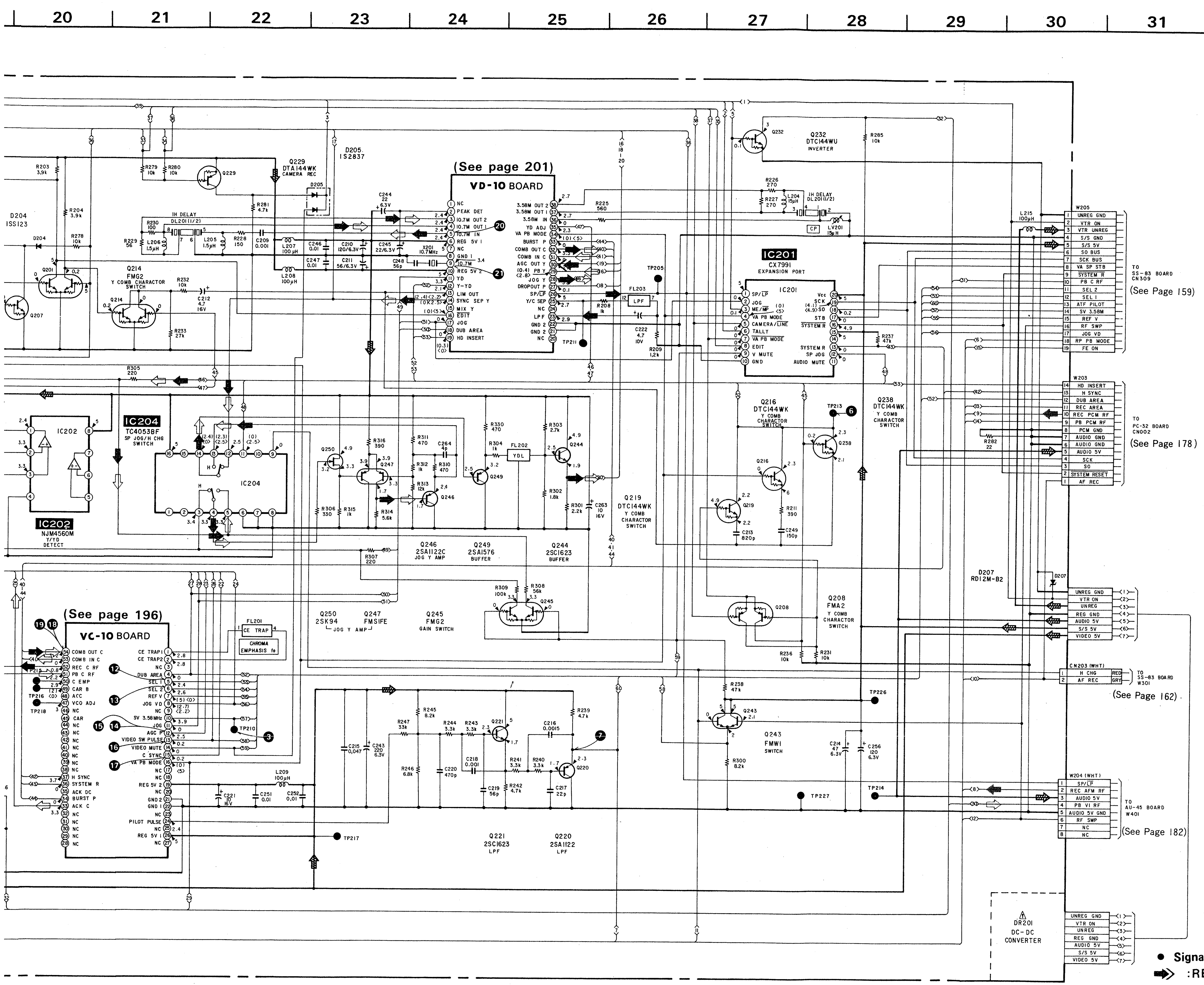
VI-46 (VIDEO SIGNAL PROCESS), CC-13 (ACCESSORY INPUT/OUTPUT, SWITCHING POWER SUPPLY), SC-9 (VIDEO/AUDIO OUTPUT JACK), PJ-19 (VIDEO/AUDIO INPUT JACK) SCHEMATIC DIAGRAM

— Ref. No. VI-46, CC-13, PJ-19 BOARDS: 3000 series, SC-9 BOARD: 4000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
CC-13 BOARD no mark : REC / PB mode
Q901 DTC144WK EXT/INT SWITCH
Q902 2SC1623 BUFFER
Q903 2SC1623 BUFFER
Q905 DTC144WK EXT/INT SWITCH
Q904 DTC144WK EXT/INT SWITCH
CN906(WHT)
CAM 5V
VIDEO IN
CAM GND
TO VC-37 BOARD CN201
(See Page 108)
ACCESSORY
OUT
IN
J901
CAM
IC901 CX20095A VIDEO AMP
Q907 2SA1175 5V SWITCH
Q908 DTC144WK EXT/INT SWITCH
D904 RD12M-B2
CN904(BLK)
VTR ON
CAM OUT
CAM GND
Q909 2SB1121 SWITCHING
D901 SB05-05CP
Q911 2SC1623
Q910 2SB1123
SWITCHING
D902 SB05-05CP
W901(WHT)
DD UNREG
NC
UNREG GND
TO FU-62 BOARD CN433
(See Page 159)
CN901(YEL)
AF 6V
UNREG GND
TO ZM-6 BOARD CN906
(See Page 122)
CN902(BLK)
PCM 8.6V
UNREG GND
TO PC 32 BOARD CN030
(See Page 175)
IC902 TL1451ACNS SWITCHING REGULATOR CONTROL
Q912 DTC124EK PROTECTION DETECT
D903 RD5.1M
CN903(WHT)
DD 6V
S/S GND
A MONI SW
STILL VD ADJ
S/S 5V
STILL STOP ADJ
TO SS-83 BOARD CN302
(See Page 162)
STD ↔ MIX ↔ PCM
S901
AUDIO MONITOR
RV902 470k STILL ADJ
RV901 470k FRAME ADJ
SC-9 BOARD
J381
VIDEO OUT
RFU DC OUT
AUDIO OUT
L
R
CN381(WHT)
VIDEO OUT
VIDEO OUT GND
VIDEO 5V
VIDEO GND
W381(WHT)
AUDIO OUT L
AUDIO OUT R
AUDIO OUT GND
AUDIO OUT MONO
TO PC-32 BOARD CN005
(See Page 179)
D381 - 389 RD9.1M
PJ-19 BOARD
J061
LINE
VIDEO IN
AUDIO OUT
CN061(WHT)
VIDEO IN
VIDEO GND
W061(WHT)
AUDIO IN L
AUDIO IN R
AUDIO GND
TO PC-32 BOARD CN012 ①-③ PIN
(See Page 175)
D061-066 RD9.1M
D067 RD3.0M
VI-46 BOARD
no mark:REC/PB mode
( ):REC mode
< >:PB mode
Q241 FMS1 CAMERA/VIDEO MUTE
CN201(WHT)
VTR ON
CAM IN
CAM GND
Q205 2SC1623 BUFFER
VY-12 BOARD
(See page 193)
W206(BLK)
TALLY
CAM REC
RETURN V GND
RETURN V
TO EM-2 BOARD CN407
(See Page 123)
CN204(WHT)
VIDEO OUT
VIDEO OUT GND
VIDEO IN
VIDEO IN GND
VIDEO 5V
VIDEO GND
Q225 DTC144WU GAIN SWITCH
W202(WHT)
RP 5V
RP PB MODE
RP GND
RP GND
ME/MP
REC Y RF
REC ATF RF
REC AFM RF
REC C RF
REC PCM RF
TO RP-57 BOARD W202
(See Page 130)
Q213 DTA144WK CAM/LINE SWITCH
Q211 FMW1 CAM/LINE SWITCH
Q203 2SA812 PB 5V
Q209 2SC1623 EQ
W201(WHT)
RP 5V
AF REC
H CHG
RF SWP
REC AREA
PB VI RF
PB PCM RF
FE ON
TO RP-57 BOARD W201
(See Page 130)
Q226 2SC4081 BUFFER
Q227 2SC1623 SOFT LIMITER
Q202 DTC144WU SWITCH
Q230 2SC4081 BUFFER
D201,202 1S1587
Q222 2SC1623 HIGH PASS AMP
LINE
CAM

CK) SCHEMATIC DIAGRAM


13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
VY-12 BOARD
(See page 193)
VD-10 BOARD
(See page 201)
VC-10 BOARD
(See page 196)
IC205
TA7060AP
LIMITER
IC203
TL062CPS
Y/YD
BUFFER
IC202
NJM4560M
Y/YD
DETECT
IC204
TC4053BF
SP JOG/SY CHG
SWITCH
IC201
CX7991
EXPANSION PORT
Q241
FMSI
CAMERA/VIDEO
MUTE
Q222
2SC1623
Q223
2SC1623
HIGH PASS AMP
Q224
DTA144WK
EDIT SWITCH
Q204
2SC1623
EDIT SWITCH
Q201
FMG2
INVERTER
Q207
DTC144WK
EDIT SWITCH
Q214
FMG2
Y COMB CHARACTOR
SWITCH
Q229
DTA144WK
CAMERA REC
D205
1S2837
D204
1SS123
D203
1SS123
Q232
DTC144WU
INVERTER
Q225
DTC144WU
GAIN SWITCH
Q248
FMA2
GAIN SWITCH
Q216
DTC144WK
Y COMB
CHARACTOR
SWITCH
Q238
DTC144WK
Y COMB
CHARACTOR
SWITCH
Q219
DTC144WK
Y COMB
CHARACTOR
SWITCH
Q246
2SA1122C
JOG Y AMP
Q249
2SA1576
BUFFER
Q244
2SC1623
BUFFER
Q250
2SK94
Q247
FMS1FE
JOG Y AMP
Q245
FMG2
GAIN SWITCH
Q208
FMA2
Y COMB
CHARACTOR
SWITCH
Q213
DTA144WK
CAM/LINE SWITCH
Q211
FMW1
CAM/LINE SWITCH
Q233
2SC4081
JOG NOISE
SWITCH
Q234
DTC144WU
JOG NOISE
SWITCH
Q203
2SA812
PB 5V
Q209
2SC1623
EQ
Q226
2SC4081
BUFFER
Q227
2SC1623
SOFT LIMITER
Q228
2SC4081
SOFT LIMITER
Q237
DTA144WU
JOG NOISE SWITCH
Q235
FMG2
ME/MP
SWITCH
Q230
2SC4081
BUFFER
D201,202
1S1587
Q243
FMW1
SWITCH
Q221
2SC1623
LPF
Q220
2SA1122
LPF
FL201
CE TRAP
CHROMA
EMPHASIS fo
FL202
YDL
FL203
LPF
1H DELAY
DL201(1/2)
X201
10.7MHz
CAM
LINE
TP212
TP204
TP207
TP229
TP220
TP221
TP224
TP216
TP218
TP210
TP217
TP205
TP211
TP213
TP226
TP227
TP214


20
21
22
23
24
25
26
27
28
29
30
31
(See page 201)
VD-10 BOARD
IC201
CX7991
EXPANSION PORT
IC204
TC4053BF
SP JOG/H CHG SWITCH
IC202
NJM4560M
Y/YD DETECT
(See page 196)
VC-10 BOARD
Q229
DTA144WK
CAMERA REC
D205
1S2837
D204
1SS123
Q214
FMG2
Y COMB CHARACTOR SWITCH
Q232
DTC144WU
INVERTER
1H DELAY
DL201(1/2)
Q216
DTC144WK
Y COMB CHARACTOR SWITCH
Q238
DTC144WK
Y COMB CHARACTOR SWITCH
Q219
DTC144WK
Y COMB CHARACTOR SWITCH
Q246
2SA1122C
JOG Y AMP
Q249
2SA1576
BUFFER
Q244
2SC1623
BUFFER
Q250
2SK94
Q247
FMS1FE
JOG Y AMP
Q245
FMG2
GAIN SWITCH
Q208
FMA2
Y COMB CHARACTOR SWITCH
D207
RD12M-B2
Q243
FMW1
SWITCH
Q221
2SC1623
LPF
Q220
2SA1122
LPF
FL201
CE TRAP
CHROMA EMPHASIS fe
FL202
YDL
FL203
LPF
TP205
TP211
TP213
TP226
TP227
TP214
TP217
TP210
TP216
TP218
W205
TO SS-83 BOARD CN309
(See Page 159)
W203
TO PC-32 BOARD CN002
(See Page 178)
CN203 (WHT)
TO SS-83 BOARD W301
(See Page 162)
W204 (WHT)
TO AU-45 BOARD W401
(See Page 182)
DR201
DC-DC CONVERTER

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- The ● number is the reference number in the waveform diagram.
- Digital transistor (VI-46: Q201, 202, 207, 208, 213, 214, 216, 219, 224, 225, 229, 232, 234, 235, 237, 238, 245, 248, CC-13: Q901, 904, 905, 908, 912) transistor with resistors. Refer to the VI-46 CC-13 boards schematic diagrams for digital transistor.

Note

Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

* Pattern being seen in the state from the surface side are indicated in gray pattern.

* Pattern being seen in the state of the rear surface side is indicated in green pattern.

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ⊡ : nonflammable resistor.
- ⊡ : fusible resistor.
- ☐ : panel disignation.
- ☐ : adjustment for repair.
- ▬ : B + line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ➯ indicates the I/O direction of B lines (+, −).
- The ● number is the reference number in the waveform diagram.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- **Signal path**

➡ :REC Y & CHROMA SIGNAL
⇨ :PB Y & CHROMA SIGNAL

➡ :REC Y SIGNAL
⇨ :PB Y SIGNAL
➡ :REC CHROMA SIGNAL
⇨ :PB CHROMA SIGNAL
➡ :REC AUDIO SIGNAL
⇨ :PB AUDIO SIGNAL

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▓ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- The ● number is the reference number in the waveform diagram.
- Digital transistor (SS-83: Q154, 158, 159, 162, 163, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 178 188, 189, 190, 191, 194, 195, 196, 197, 198, 200, 207, 208, 209, 210, 211, 212, 213, TS-80: Q452, DR-45: Q502) transistor with resistors.
  Refer to the SS-83, TS-80, DR-45 boards schematic diagrams for digital transistor.

Note

Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

* Pattern being seen in the state from the surface side are indicated in gray pattern.

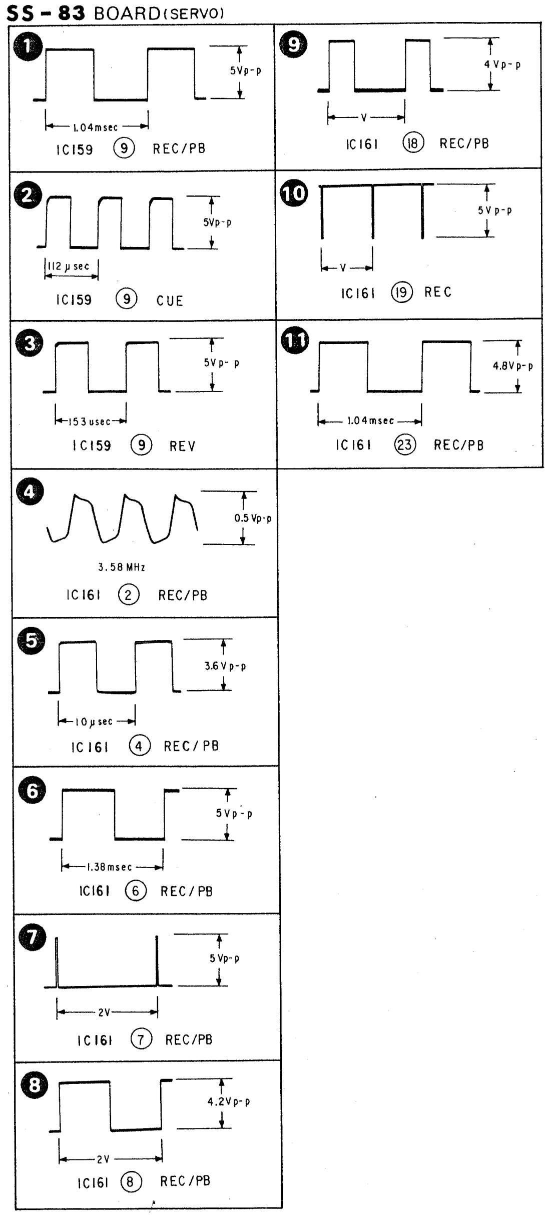
* Pattern being seen in the state of the rear surface side is indicated in green pattern.

Note (Schematic Diagram)

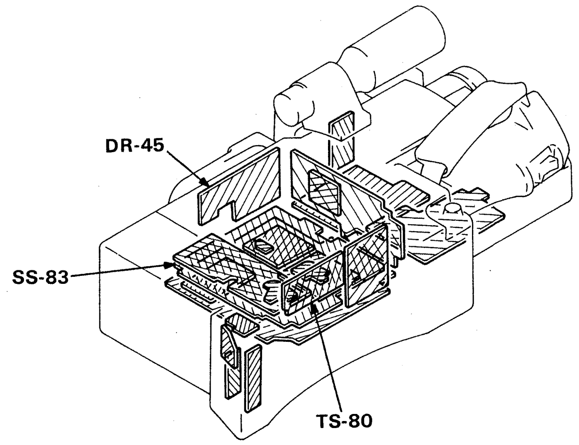
- Caution to be exercised when replacing chip components
  Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel disignation.
- ▭ : adjustment for repair.
- ▬ : B + line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).
- The ● number is the reference number in the waveform diagram.

When indicating parts by reference number, please include the board name.

SS-83 BOARD (SERVO)



❶
5Vp-p
1.04msec
IC159 ⑨ REC/PB
❷
5Vp-p
112 μsec
IC159 ⑨ CUE
❸
5Vp-p
153 usec
IC159 ⑨ REV
❹
0.5 Vp-p
3.58 MHz
IC161 ② REC/PB
❺
3.6 Vp-p
10 μsec
IC161 ④ REC/PB
❻
5Vp-p
1.38msec
IC161 ⑥ REC/PB
❼
5Vp-p
2V
IC161 ⑦ REC/PB
❽
4.2Vp-p
2V
IC161 ⑧ REC/PB
❾
4Vp-p
V
IC161 ⑱ REC/PB
❿
5Vp-p
V
IC161 ⑲ REC
⓫
4.8Vp-p
1.04msec
IC161 ㉓ REC/PB

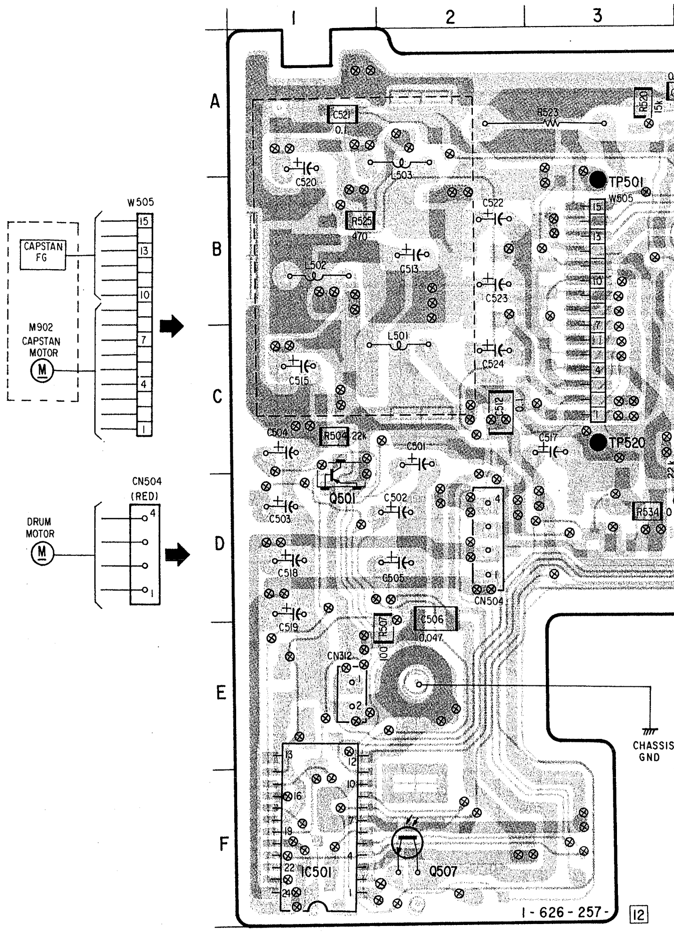


DR-45
SS-83
TS-80

SS-83 (SERVO, SYSTEM CONTROL), DR-45 (DRUM/CAPSTAN MOTOR DRIVE, TAPE END SENSOR, TS-80 (SERVO, TAPE TOP SENS

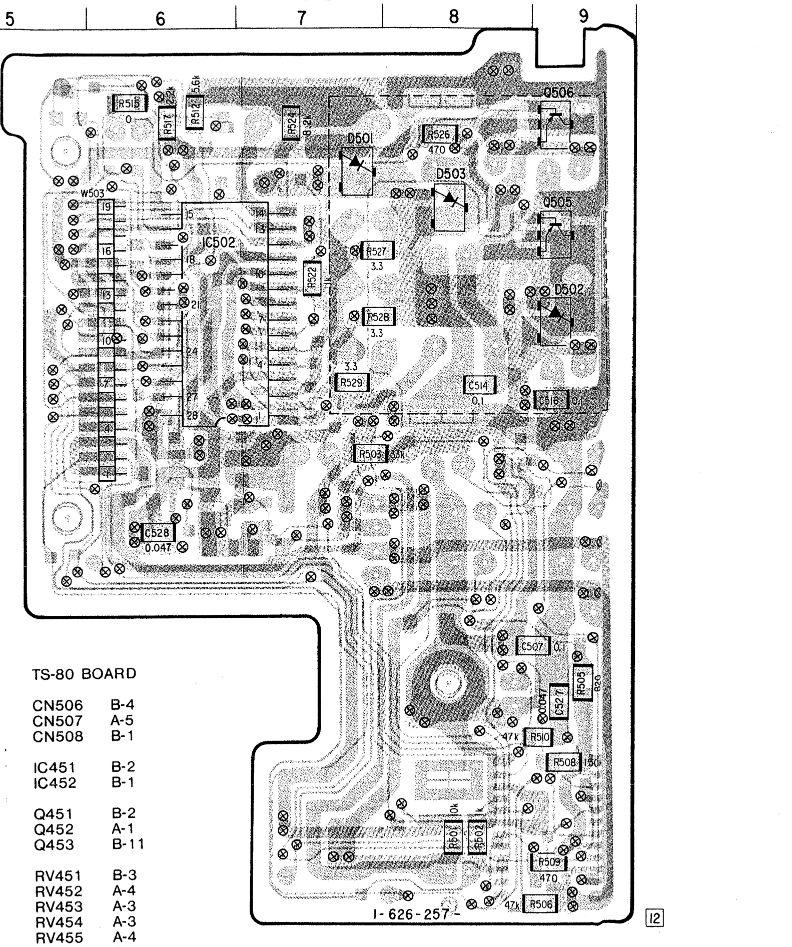
— Ref. No. TS-80 BOARD: 4000 series, SS-83 BOARD: 5000 series, DR-45 BOARD: 6000 series —

DR-45 BOARD (COMPONENT SIDE)



1
2
3
4
A
B
C
D
E
F
W505
CAPSTAN FG
M902 CAPSTAN MOTOR
CN504 (RED)
DRUM MOTOR
CHASSIS GND
TP501
TP502
Q501
Q502
Q503
Q504
Q507
IC501
CN312
L501
1-626-257-
12

DR-45 BOARD (CONDUCTOR SIDE)

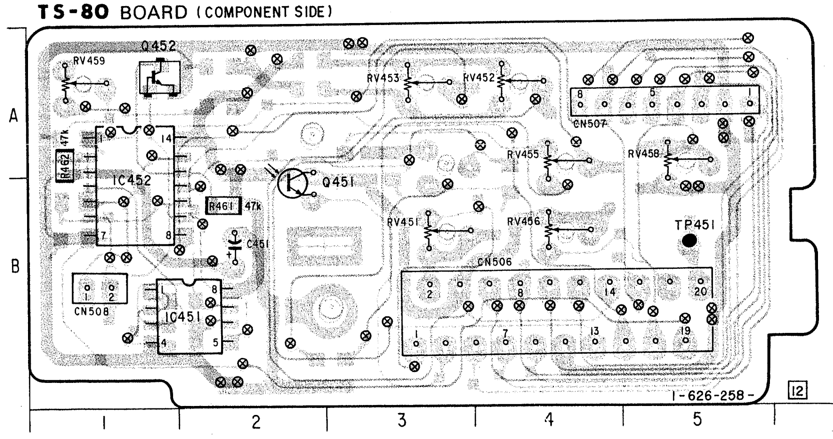


5
6
7
8
9
IC502
D501
D502
D503
Q505
Q506
W503
1-626-257-
12

DR-45 BOARD	
CN312	E-1
CN504	D-2
D501	A-7
D502	B-9
D503	B-8
IC501	F-1
IC502	B-6
Q501	D-1
Q502	D-4
Q503	D-4
Q504	A-4
Q505	B-9
Q506	D-9
Q507	F-2
TP501	B-3
TP502	C-3

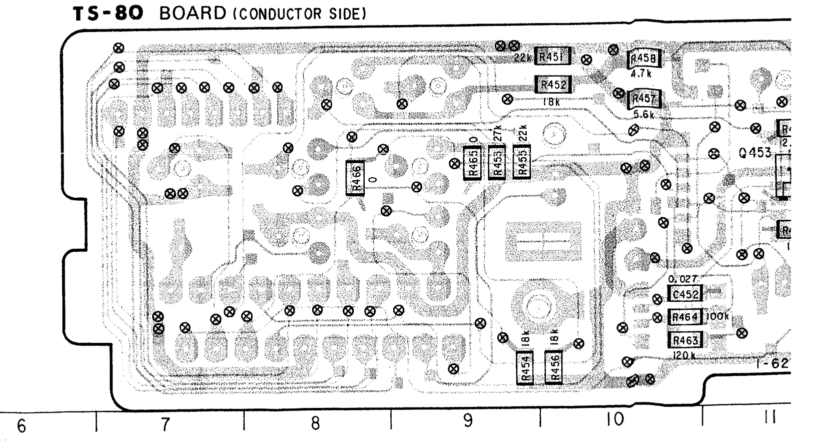
TS-80 BOARD	
CN506	B-4
CN507	A-5
CN508	B-1
IC451	B-2
IC452	B-1
Q451	B-2
Q452	A-1
Q453	B-11
RV451	B-3
RV452	A-4
RV453	A-3
RV454	A-3
RV455	A-4
RV456	B-4
RV458	B-5
RV459	A-1
TP451	B-5

TS-80 BOARD (COMPONENT SIDE)



A
B
1
2
3
4
5
RV459
Q452
RV453
RV452
CN507
IC452
Q451
RV455
RV458
RV451
RV456
TP451
CN506
CN508
IC451
1-626-258-
12

TS-80 BOARD (CONDUCTOR SIDE)

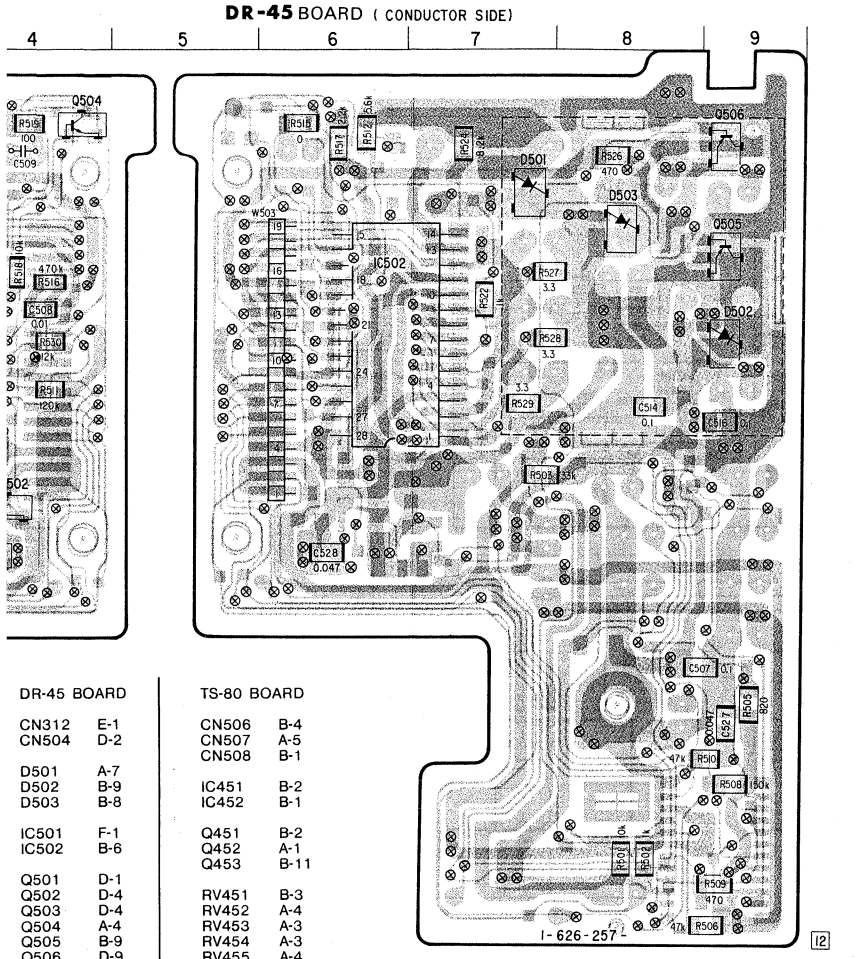


6
7
8
9
10
11
Q453

STAN MOTOR DRIVE, TAPE END SENSOR, TS-80 (SERVO, TAPE TOP SENSOR) PRINTED WIRING BOARD

, DR-45 BOARD: 6000 series —

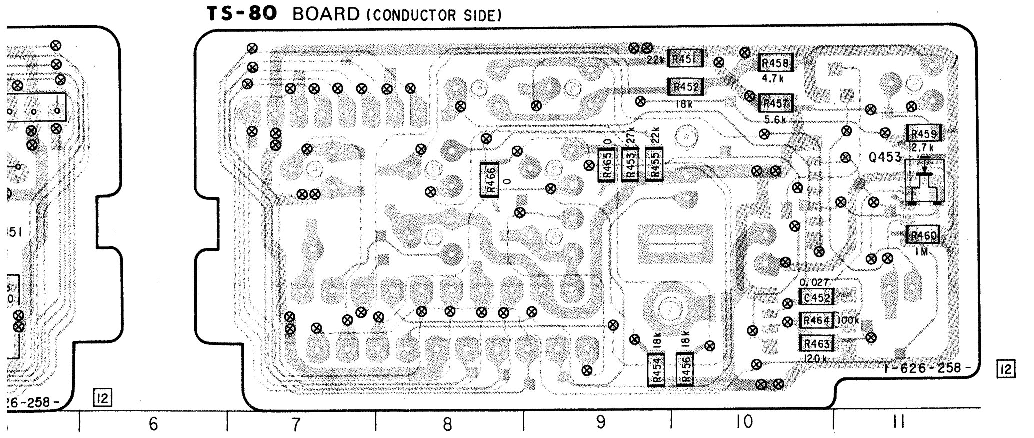
DR-45 BOARD (CONDUCTOR SIDE)


4
5
6
7
8
9
Q504
R519
C509
R518
R516
470k
C508
0.01
R530
R514
502
R515
R512
R517
R524
D501
R526
470
D503
W501
IC502
Q506
Q505
R527
3.3
R528
3.3
D502
R529
C514
0.1
R503
C528
0.047
C507
R505
R510
R508
R501
R502
R506
1-626-257
12

DR-45 BOARD	
CN312	E-1
CN504	D-2
D501	A-7
D502	B-9
D503	B-8
IC501	F-1
IC502	B-6
Q501	D-1
Q502	D-4
Q503	D-4
Q504	A-4
Q505	B-9
Q506	D-9
Q507	F-2
TP501	B-3
TP502	C-3

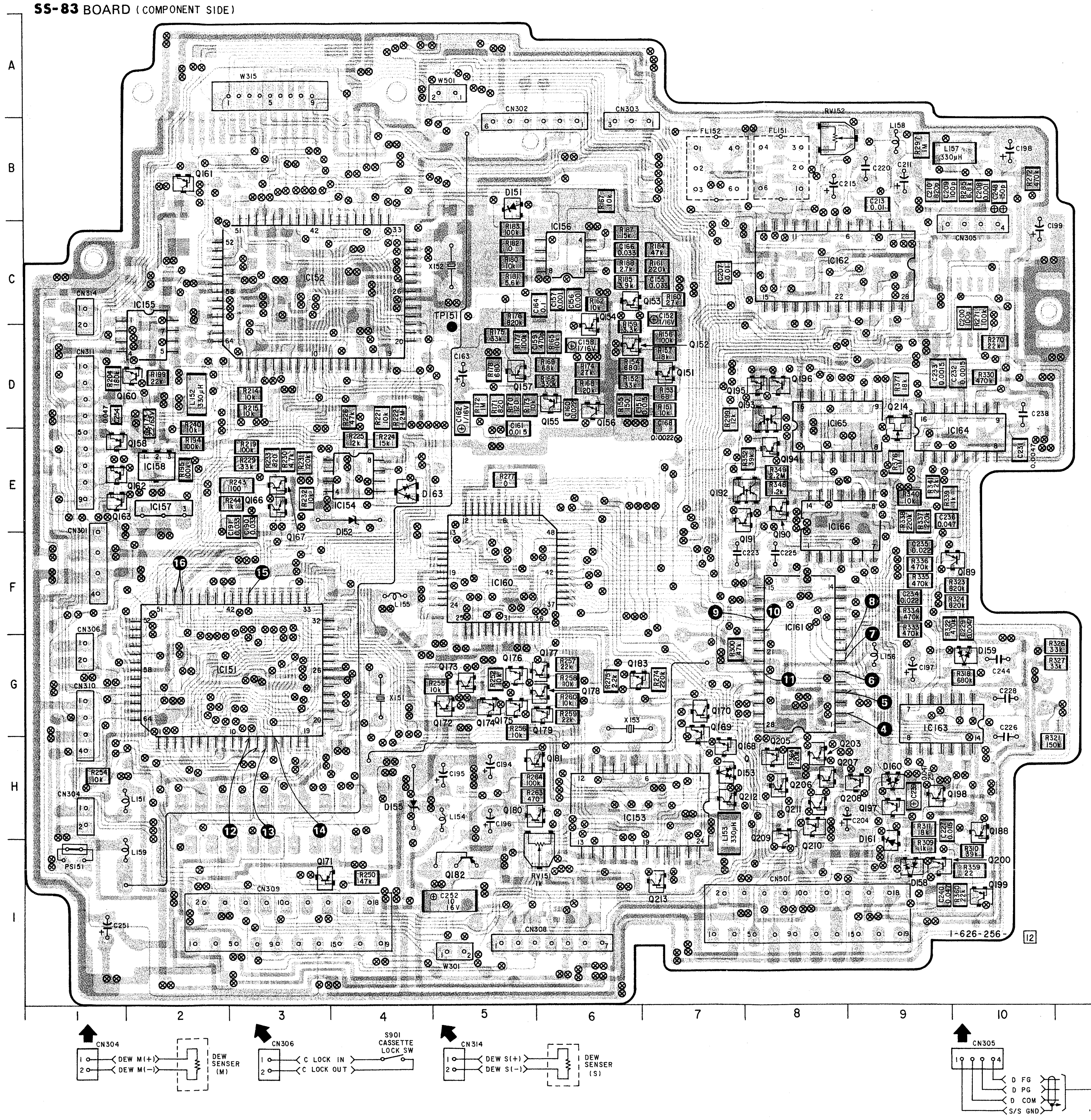
TS-80 BOARD	
CN506	B-4
CN507	A-5
CN508	B-1
IC451	B-2
IC452	B-1
Q451	B-2
Q452	A-1
Q453	B-11
RV451	B-3
RV452	A-4
RV453	A-3
RV454	A-3
RV455	A-4
RV456	B-4
RV458	B-5
RV459	A-1
TP451	B-5

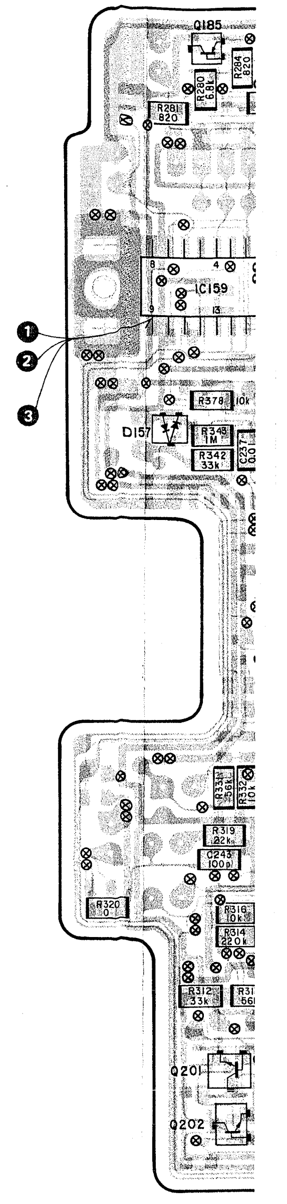
TS-80 BOARD (CONDUCTOR SIDE)


R451
22k
R458
4.7k
R452
18k
R457
5.6k
R466
R465
R453
27k
R455
22k
R459
2.7k
Q453
R460
1M
0.027
C452
R464
100k
R463
120k
R454
18k
R456
18k
1-626-258
12
51
26-258
6
7
8
9
10
11

SS-83 BOARD	
CN301	F-1
CN302	B-5
CN303	B-6
CN304	H-1
CN305	C-10
CN306	G-1
CN307	H-19
CN308	I-6
CN309	I-3
CN310	G-1
CN311	D-1
CN314	C-1
CN501	I-8
D151	B-5
D152	E-4
D153	H-7
D154	G-21
D155	H-4
D156	G-13
D157	D-12
D158	I-8
D159	G-10
D160	H-9
D161	I-8
D162	B-14
D163	E-4
IC151	G-2
IC152	C-3
IC153	H-6
IC154	E-4
IC155	D-2
IC156	C-6
IC157	E-2
IC158	E-2
IC159	C-12
IC160	F-5
IC161	F-8
IC162	C-8
IC163	G-9
IC164	D-10
IC165	D-8
IC166	E-8
IC167	E-14
Q151	D-7
Q152	D-6
Q153	C-6
Q154	C-6
Q155	D-6
Q156	D-6
Q157	D-5
Q158	E-1
Q159	E-21
Q160	D-2
Q161	B-2
Q162	E-1
Q163	E-1
Q166	E-3
Q167	E-3
Q168	H-7
Q169	G-7
Q170	G-7
Q171	I-3
Q172	G-5
Q173	G-5
Q174	G-5
Q175	G-5
Q176	G-5
Q177	G-6
Q178	G-6
Q179	G-6
Q180	H-5
Q181	H-5
Q182	I-5
Q183	G-6
Q184	C-14
Q185	B-13
Q186	C-14
Q187	B-14
Q188	H-10
Q189	F-10
Q190	E-8
Q191	E-7
Q192	E-7
Q193	D-8
Q194	E-8
Q195	D-8
Q196	D-8
Q197	H-9
Q198	H-9
Q199	I-10
Q200	I-8
Q201	I-13
Q202	I-13
Q203	H-8
Q204	H-14
Q205	H-8
Q206	H-8
Q207	H-8
Q208	H-9
Q209	I-8
Q210	H-8
Q211	H-8
Q212	H-7
Q213	I-7
Q214	D-9
RV151	I-5
RV152	B-8
TP151	D-5

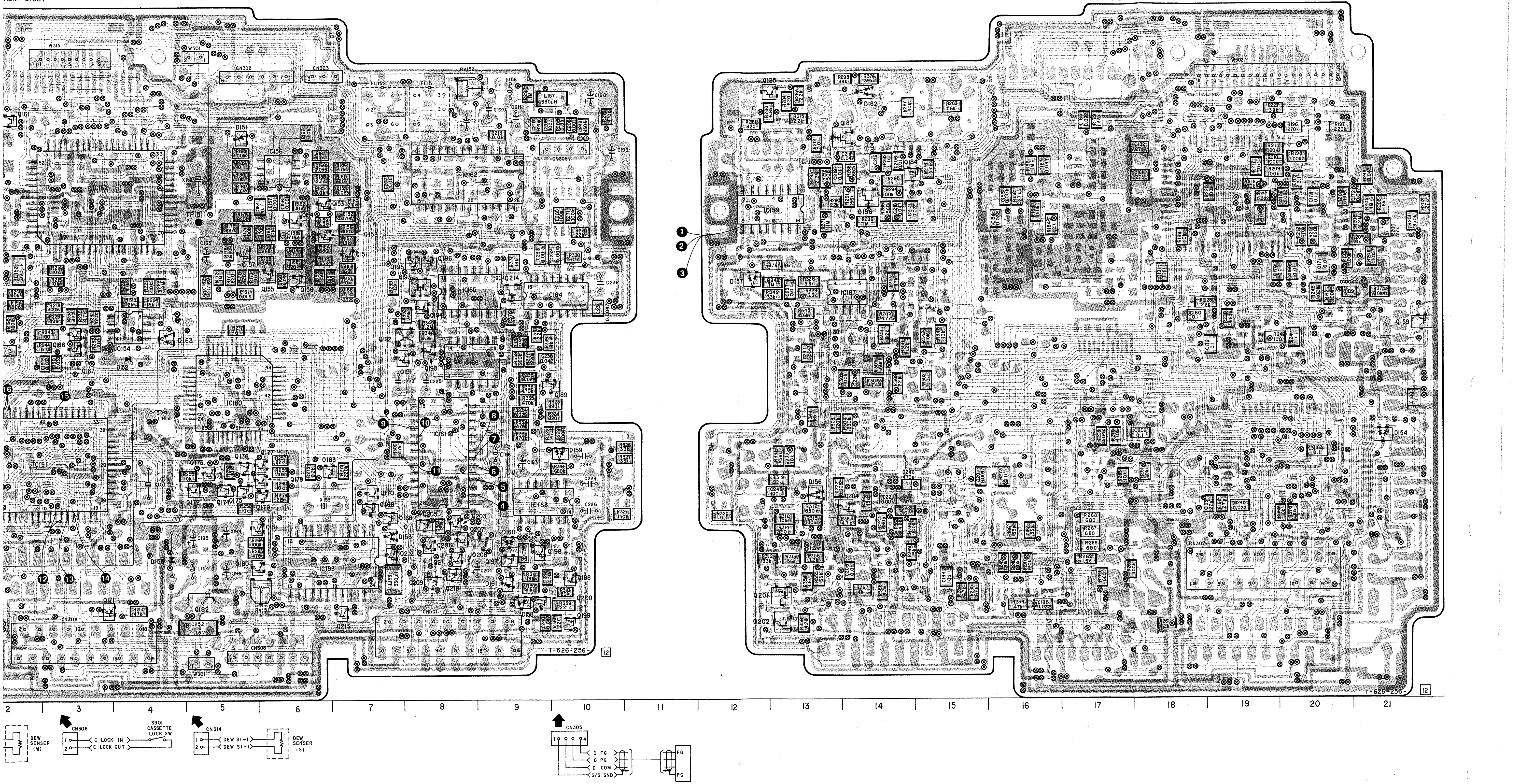
SS-83 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
W315
W501
CN302
CN303
RV152
FL152
FL151
L158
L157
330μH
C198
C220
C215
C211
C199
CN305
Q161
D151
IC156
IC152
X151
TP151
IC162
CN314
IC155
CN311
Q160
Q157
Q153
Q154
Q152
Q151
Q155
Q156
IC158
Q158
Q162
Q163
IC157
Q166
Q167
IC154
D152
D163
IC165
Q214
IC164
Q196
Q193
Q194
Q192
Q191
Q190
IC166
Q189
CN301
IC160
IC161
IC151
CN306
CN310
CN304
PS151
L151
L159
L155
L154
D155
C251
Q173
Q176
Q177
Q178
Q172
Q174
Q175
Q179
Q183
X153
Q170
Q169
Q168
Q181
Q180
IC153
L153
330μH
D153
Q212
Q213
Q205
Q203
Q207
Q206
Q208
Q210
Q211
Q209
D160
Q197
Q198
D161
D158
Q188
Q200
Q199
D159
IC163
C244
C228
C226
CN309
Q171
Q182
C252
RV151
W301
CN308
CN501
1-626-256
12
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
CN304
DEW M(+)
DEW M(-)
DEW SENSER (M)
CN306
C LOCK IN
C LOCK OUT
S901 CASSETTE LOCK SW
CN314
DEW S(+)
DEW S(-)
DEW SENSER (S)
CN305
D FG
D PG
D COM
S/S GND
FG
PG


Q185
R280
820
IC159
1
2
3
D157
R578
R342
33k
Q201
Q202
R320

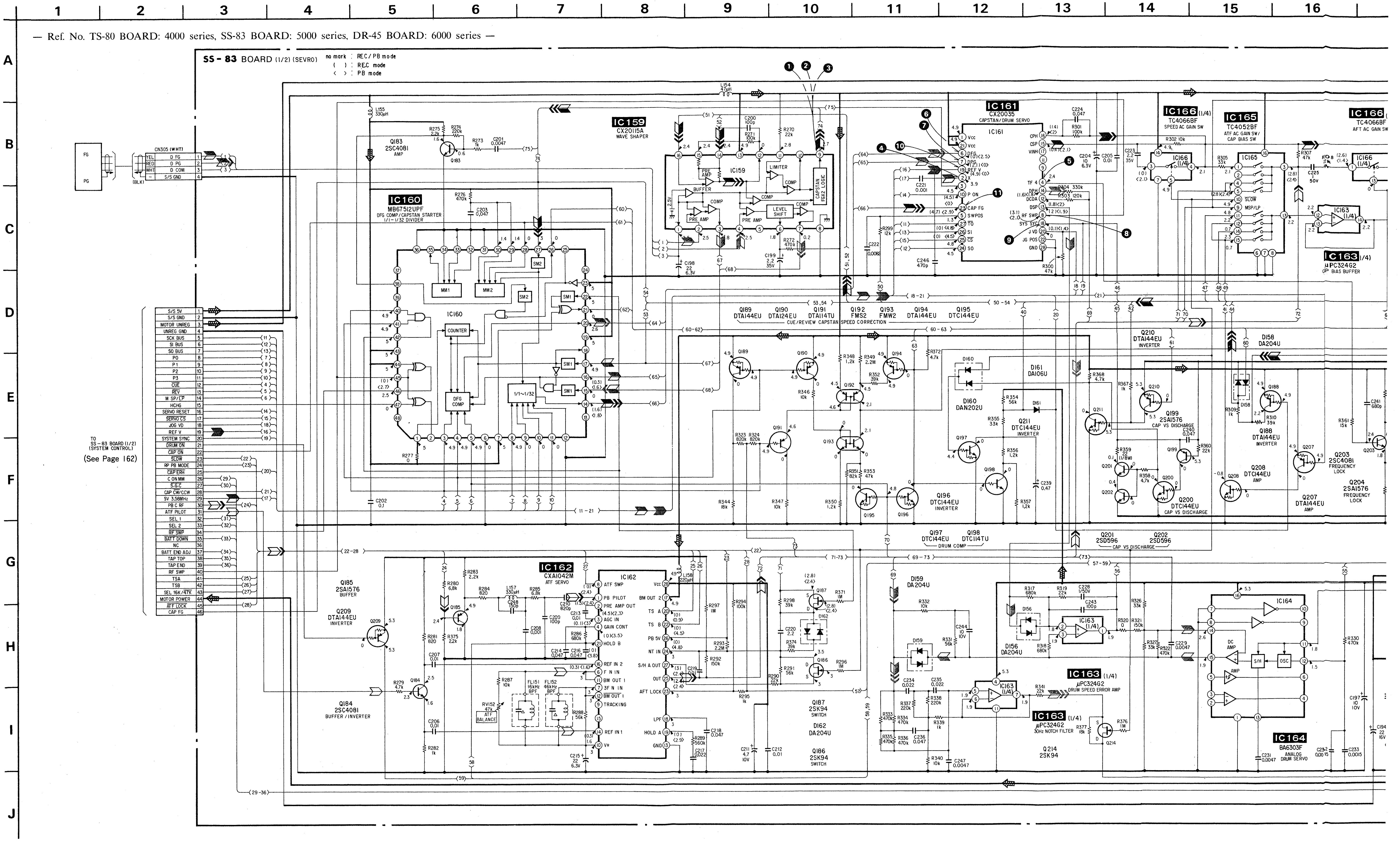
NENT SIDE)

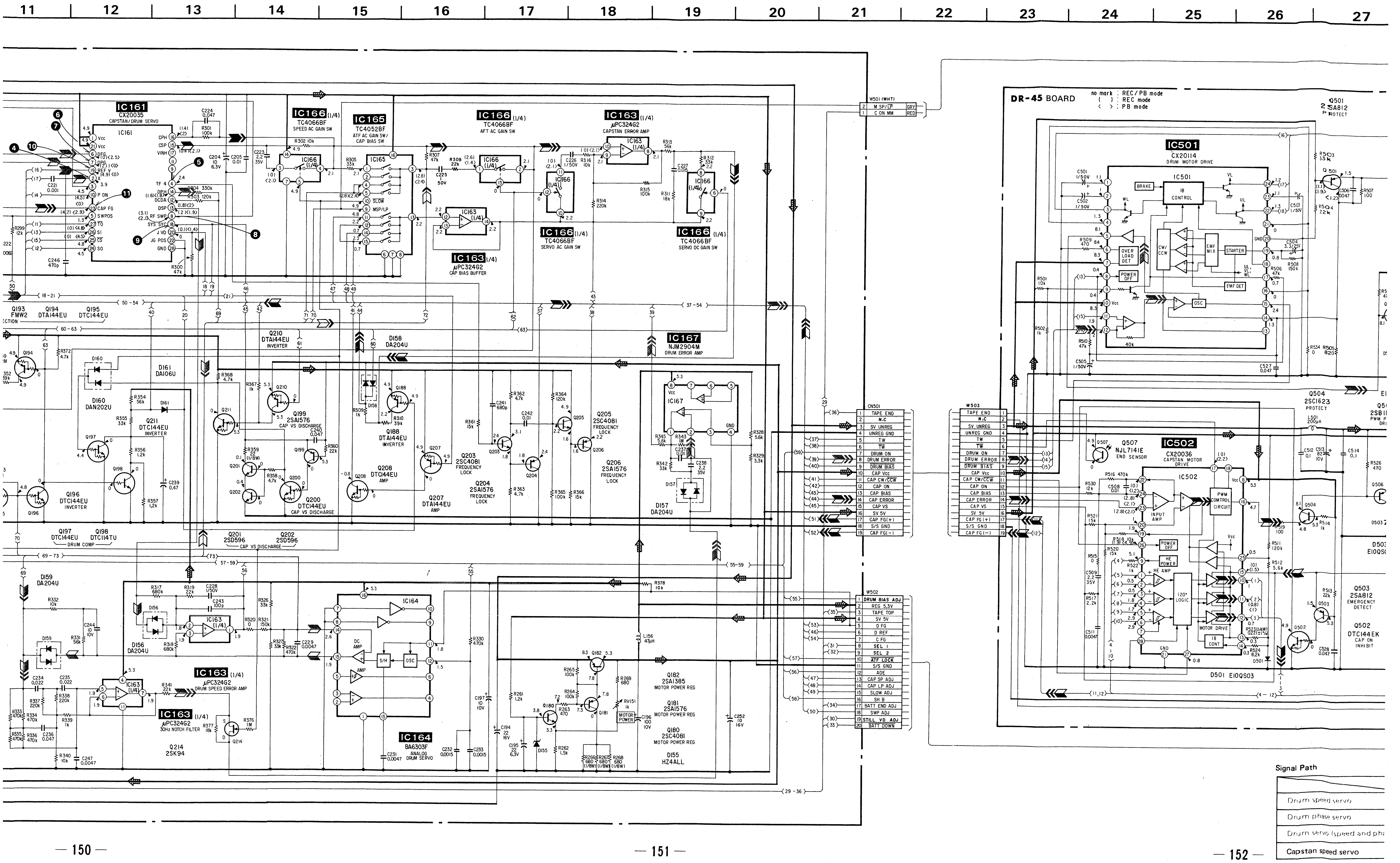
SS-83 BOARD (CONDUCTOR SIDE)

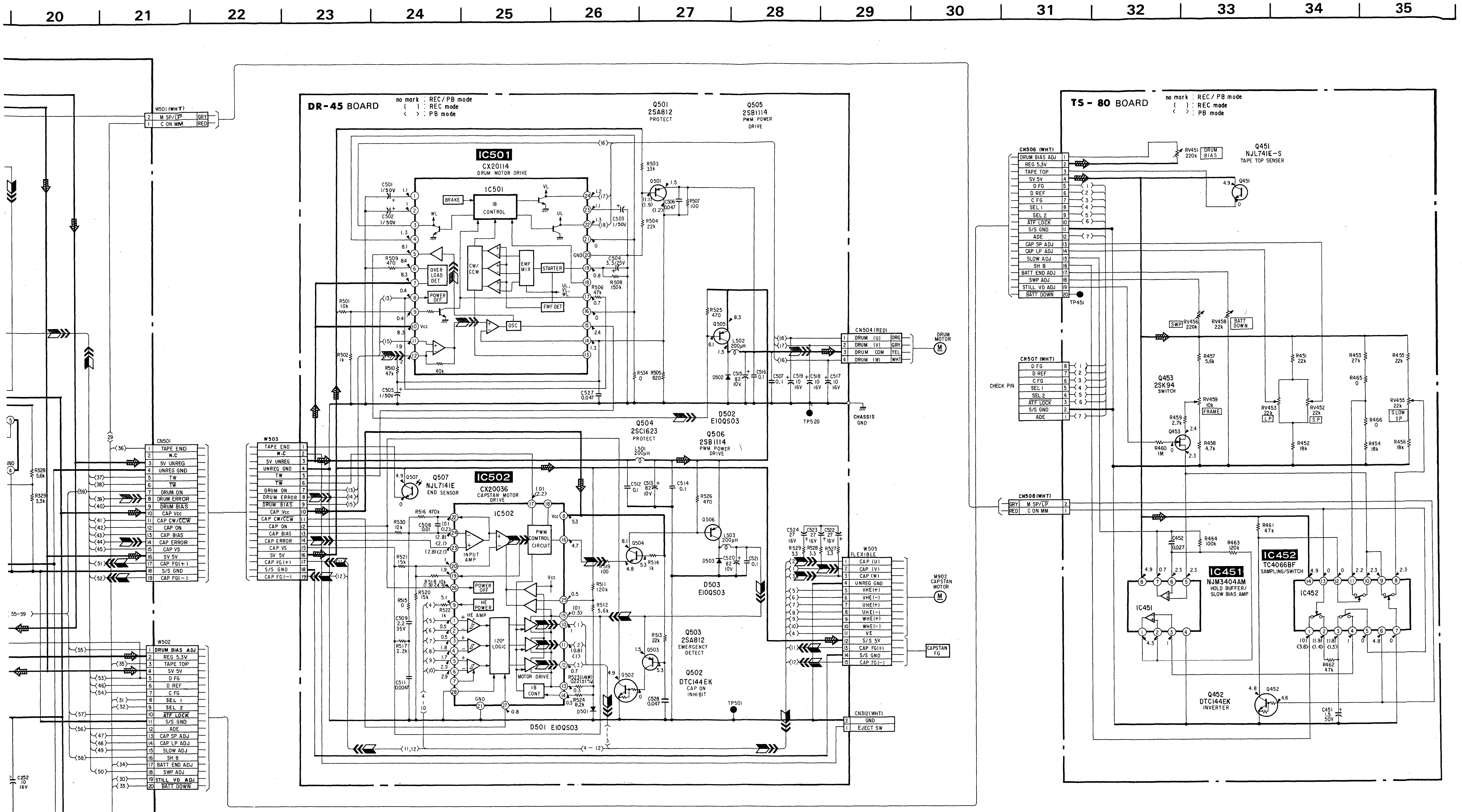

W315
W501
CN302
CN303
FL152
FL151
RV152
L157 330μH
CN305
IC152
IC156
IC162
TP151
IC165
IC164
IC154
IC160
IC166
IC161
IC151
IC163
IC153
CN309
CN308
CN301
W301
1-626-256- 12
IC159
IC167
W502
CN307
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
DEW SENSER (M)
CN306
1
2
C LOCK IN
C LOCK OUT
S901 CASSETTE LOCK SW
CN314
DEW S(+)
DEW S(−)
DEW SENSER (S)
CN305
1
4
D FG
D PG
D COM
S/S GND
FG
PG

SS-83 (SERVO), DR-45 (DRUM/CAPSTAN MOTOR DRIVE, TAPE END SENSOR), TS-80 (SERVO, TAPE TOP SENSOR) SCHEMATIC DIAGRAM

— Ref. No. TS-80 BOARD: 4000 series, SS-83 BOARD: 5000 series, DR-45 BOARD: 6000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
SS-83 BOARD (1/2) (SEVRO)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
FG
PG
CN305 (WHT)
D FG
D PG
D COM
S/S GND
(BLK)
IC159
CX20115A
WAVE SHAPER
IC160
MB675I2UPF
DFG COMP/CAPSTAN STARTER
1/1~1/32 DIVIDER
MM1
MM2
SM1
SM2
COUNTER
DFG COMP
1/1~1/32
IC161
CX20035
CAPSTAN/DRUM SERVO
IC162
CXA1042M
ATF SERVO
IC163
μPC324G2
BIAS BUFFER
DRUM SPEED ERROR AMP
30Hz NOTCH FILTER
IC164
BA6303F
ANALOG DRUM SERVO
IC165
TC4052BF
ATF AC GAIN SW/CAP BIAS SW
IC166
TC4066BF
SPEED AC GAIN SW
AFT AC GAIN SW
Q183 2SC4081 AMP
Q184 2SC4081 BUFFER/INVERTER
Q185 2SA1576 BUFFER
Q209 DTA144EU INVERTER
Q189 DTA144EU
Q190 DTA124EU
Q191 DTA114TU
Q192 FMS2
Q193 FMW2
Q194 DTA144EU
Q195 DTC144EU
CUE/REVIEW CAPSTAN SPEED CORRECTION
Q196 DTC144EU INVERTER
Q197 DTC144EU
Q198 DTC114TU
DRUM COMP
Q186 2SK94 SWITCH
Q187 2SK94 SWITCH
D162 DA204U
D159 DA204U
D160 DAN202U
D161 DA106U
Q211 DTC144EU INVERTER
Q199 2SA1576 CAP VS DISCHARGE
Q200 DTC144EU CAP VS DISCHARGE
Q201 2SD596
Q202 2SD596
CAP VS DISCHARGE
Q210 DTA144EU INVERTER
D158 DA204U
Q188 DTA144EU INVERTER
Q208 DTC144EU AMP
Q207 DTA144EU AMP
Q203 2SC4081 FREQUENCY LOCK
Q204 2SA1576 FREQUENCY LOCK
Q214 2SK94
D156 DA204U
FL151 16kHz BPF
FL152 46kHz BPF
RV152 47k ATF BALANCE
TO SS-83 BOARD (1/2) (SYSTEM CONTROL)
(See Page 162)
S/S 5V
S/S GND
MOTOR UNREG
UNREG GND
SCK BUS
SI BUS
SO BUS
P0
P1
P2
P3
CUE
REV
M SP/LP
HCHG
SERVO RESET
SERVO CS
JOG VD
REF V
SYSTEM SYNC
DRUM ON
CAP ON
SLOW
RP PB MODE
CAP ERH
C ONMM
S.G.C
CAP CW/CCW
SV 3.58MHz
PB C RF
ATF PILOT
SEL 1
SEL 2
RF SWP
BATT DOWN
NC
BATT END ADJ
TAP TOP
TAP END
RF SWP
TSA
TSB
SEL 16K/47K
MOTOR POWER
ATF LOCK
CAP FG
L154 47μH
L155 330μH
L156 220μH
L157 330μH


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
IC161
CX20035
CAPSTAN/DRUM SERVO
IC166 (1/4)
TC4066BF
SPEED AC GAIN SW
IC165
TC4052BF
ATF AC GAIN SW/
CAP BIAS SW
IC166 (1/4)
TC4066BF
AFT AC GAIN SW
IC163 (1/4)
μPC324G2
CAPSTAN ERROR AMP
IC166 (1/4)
TC4066BF
SERVO AC GAIN SW
IC163 (1/4)
μPC324G2
CAP BIAS BUFFER
IC166 (1/4)
TC4066BF
SERVO DC GAIN SW
IC167
NJM2904M
DRUM ERROR AMP
Q193
FMW2
Q194
DTA144EU
Q195
DTC144EU
Q210
DTA144EU
INVERTER
D158
DA204U
D161
DA106U
D160
DAN202U
Q211
DTC144EU
INVERTER
Q199
2SA1576
CAP VS DISCHARGE
Q188
DTA144EU
INVERTER
Q208
DTC144EU
AMP
Q203
2SC4081
FREQUENCY LOCK
Q204
2SA1576
FREQUENCY LOCK
Q205
2SC4081
FREQUENCY LOCK
Q206
2SA1576
FREQUENCY LOCK
Q207
DTA144EU
AMP
Q200
DTC144EU
CAP VS DISCHARGE
Q196
DTC144EU
INVERTER
Q197
DTC144EU
Q198
DTC114TU
DRUM COMP
Q201
2SD596
Q202
2SD596
CAP VS DISCHARGE
D157
DA204U
D159
DA204U
D156
DA204U
IC163 (1/4)
μPC324G2
DRUM SPEED ERROR AMP
IC163 (1/4)
μPC324G2
30Hz NOTCH FILTER
Q214
2SK94
IC164
BA6303F
ANALOG DRUM SERVO
DC AMP
S/H
OSC
AMP
Q182
2SA1385
MOTOR POWER REG
Q181
2SA1576
MOTOR POWER REG
Q180
2SC4081
MOTOR POWER REG
D155
HZ4ALL
MOTOR POWER
W501 (WHT)
M SP/LP
C ON MM
GRY
RED
CN501
TAPE END
N.C
SV UNREG
UNREG GND
TW
TW
DRUM ON
DRUM ERROR
DRUM BIAS
CAP Vcc
CAP CW/CCW
CAP ON
CAP BIAS
CAP ERROR
CAP VS
SV 5V
CAP FG(+)
S/S GND
CAP FG(−)
W502
DRUM BIAS ADJ
REG 5.3V
TAPE TOP
SV 5V
D FG
D REF
C FG
SEL 1
SEL 2
ATF LOCK
S/S GND
ADE
CAP SP ADJ
CAP LP ADJ
SLOW ADJ
SH B
BATT END ADJ
SWP ADJ
STILL VD ADJ
BATT DOWN
W503
DR-45 BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
IC501
CX20114
DRUM MOTOR DRIVE
BRAKE
IB CONTROL
OVER LOAD DET
POWER OFF
CW/CCW
EMF MIX
STARTER
EMF DET
OSC
Q501
2SA812
PROTECT
Q504
2SC1623
PROTECT
Q507
NJL7141E
END SENSOR
IC502
CX20036
CAPSTAN MOTOR DRIVE
INPUT AMP
PWM CONTROL CIRCUIT
POWER OFF
HE POWER
HE AMP
120° LOGIC
MOTOR DRIVE
IB CONT
D501 E10QS03
Q503
2SA812
EMERGENCY DETECT
Q502
DTC144EK
CAP ON INHIBIT
L501
200μH
Signal Path
Drum speed servo
Drum phase servo
Drum servo (speed and pha
Capstan speed servo


20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
DR-45 BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
IC501
CX20114
DRUM MOTOR DRIVE
IC502
CX20036
CAPSTAN MOTOR DRIVE
Q501 2SA812 PROTECT
Q505 2SB1114 PWM POWER DRIVE
Q504 2SC1623 PROTECT
Q506 2SB1114 PWM POWER DRIVE
Q507 NJL7141E END SENSOR
Q503 2SA812 EMERGENCY DETECT
Q502 DTC144EK CAP ON INHIBIT
D502 E10QS03
D503 E10QS03
D501 E10QS03
DRUM MOTOR
M902 CAPSTAN MOTOR
CAPSTAN FG
CHASSIS GND
CN504 (RED)
W505 FLEXIBLE
CN312 (WHT)
W501 (WHT)
CN501
W503
W502
TS-80 BOARD
Q451 NJL741E-S TAPE TOP SENSER
Q453 2SK94 SWITCH
Q452 DTC144EK INVERTER
IC451 NJM3404AM HOLD BUFFER/SLOW BIAS AMP
IC452 TC4066BF SAMPLING/SWITCH
CN506 (WHT)
CN507 (WHT)
CN508 (WHT)
CHECK PIN
TP451
TP520
TP501

Signal Path

	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶»	
Drum servo (speed and phase)		▶»»	
Capstan speed servo		▶	

	REC	REC/PB	PB
Capstan phase servo	▶»		▷»
Capstan servo (speed and phase)		▶»»	
Ref. signal	▶	▶	▷

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- The ● number is the reference number in the waveform diagram.
- Digital transistor (SS-83: Q154, 158, 159, 162, 163, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 178, 188, 189, 190, 191, 194, 195, 196, 197, 198, 200, 207, 208, 209, 210, 211, 212, 213) transistor with resistors.
  Refer to the SS-83 board schematic diagrams for digital transistor.

Note

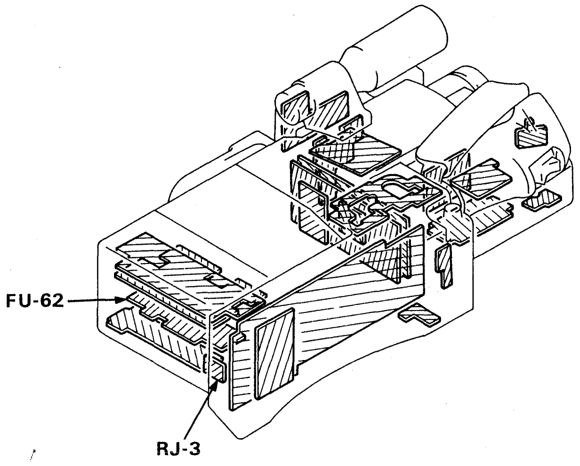
Conductor side: Parts on the conductor side being seen from the conductor are stated.

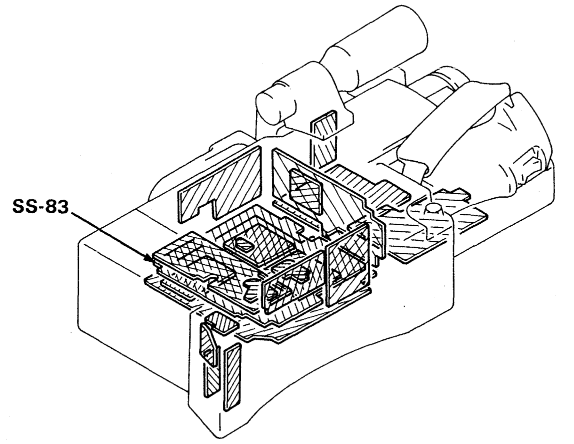
Component side: Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

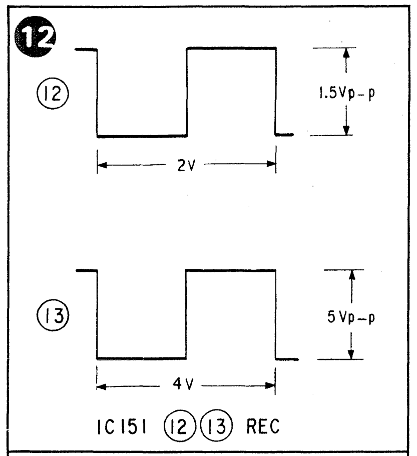
* Pattern being seen in the state from the surface side are indicated in gray pattern.

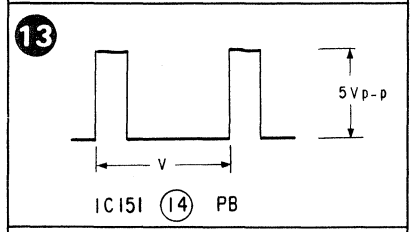
* Pattern being seen in the state of the rear surface side is indicated in green pattern.

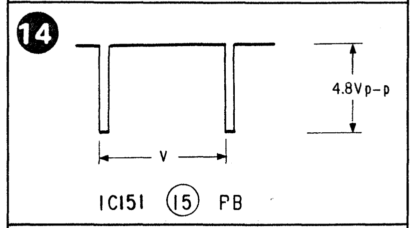


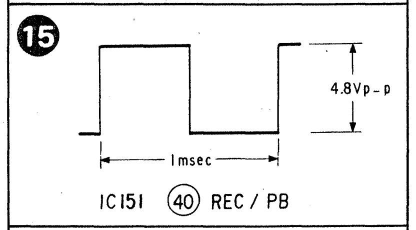


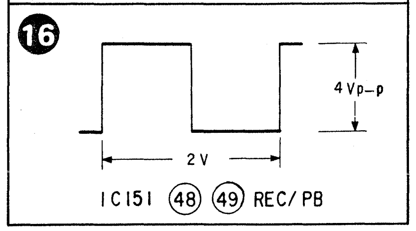
SS-83 BOARD(SYSTEM CONTROL)


⑫
⑫
1.5Vp-p
2V
⑬
5Vp-p
4V
IC151 ⑫⑬ REC


⑬
5Vp-p
V
IC151 ⑭ PB

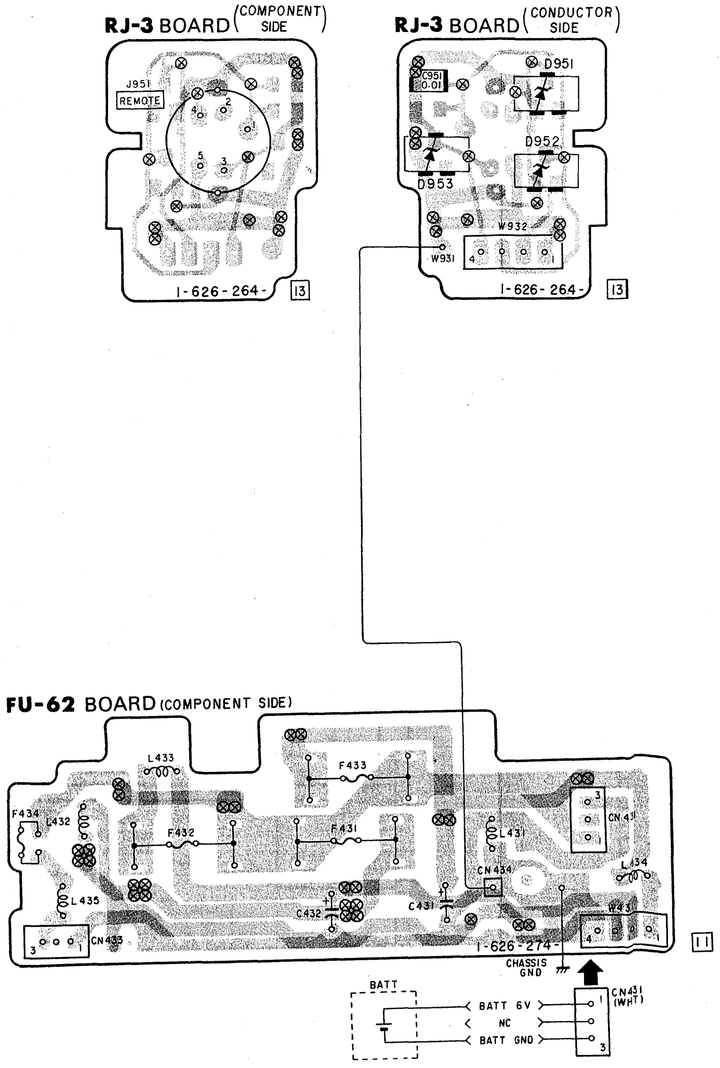

⑭
4.8Vp-p
V
IC151 ⑮ PB


⑮
4.8Vp-p
1msec
IC151 ㊵ REC/PB


⑯
4Vp-p
2V
IC151 ㊽ ㊾ REC/PB

SS-83 (SERVO, SYSTEM CONTROL), RJ-3 (WIRED REMOTE CONTROL

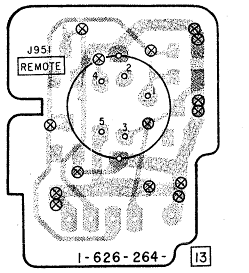
— Ref. No. SS-83, RJ-3, FU-62 BOARDS: 5000 series —


RJ-3 BOARD (COMPONENT SIDE)
J951
REMOTE
1
2
3
4
5
1-626-264-
13
RJ-3 BOARD (CONDUCTOR SIDE)
C951
0.01
D951
D952
D953
W932
W931
4
1
1-626-264-
13
FU-62 BOARD (COMPONENT SIDE)
L433
F433
F434
L432
F432
F431
L431
CN431
3
1
L434
CN434
L435
C432
C431
W431
4
1
CN433
3
1
1-626-274-
11
CHASSIS GND
BATT
BATT 6V
NC
BATT GND
CN431 (WHT)
1
3

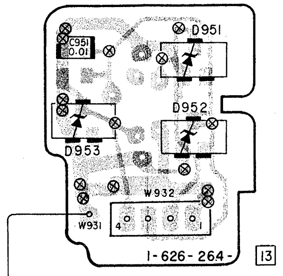
·83 (SERVO, SYSTEM CONTROL), RJ-3 (WIRED REMOTE CONTROL JACK), FU-62 (FUSE, BATTERY) PRINTED WIRING BOARD

Ref. No. SS-83, RJ-3, FU-62 BOARDS: 5000 series —

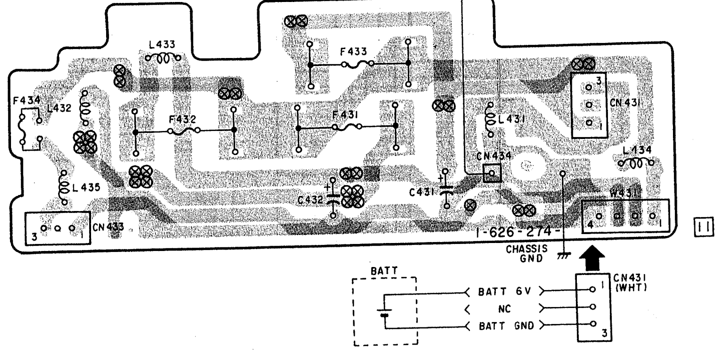
RJ-3 BOARD (COMPONENT SIDE)


J951
REMOTE
1-626-264-
13

RJ-3 BOARD (CONDUCTOR SIDE)


C951
0.01
D951
D952
D953
W932
W931
1-626-264-
13

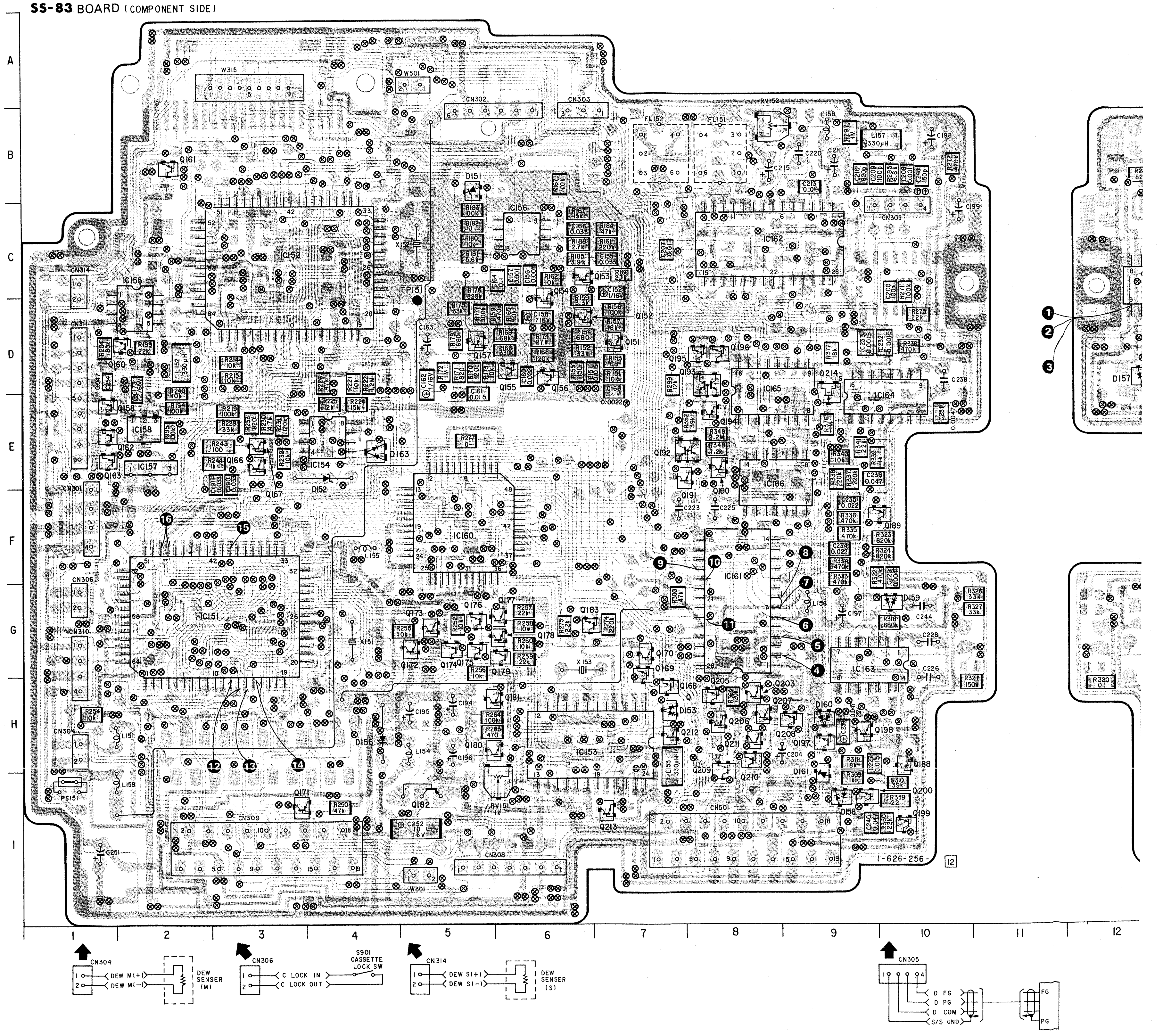
FU-62 BOARD (COMPONENT SIDE)

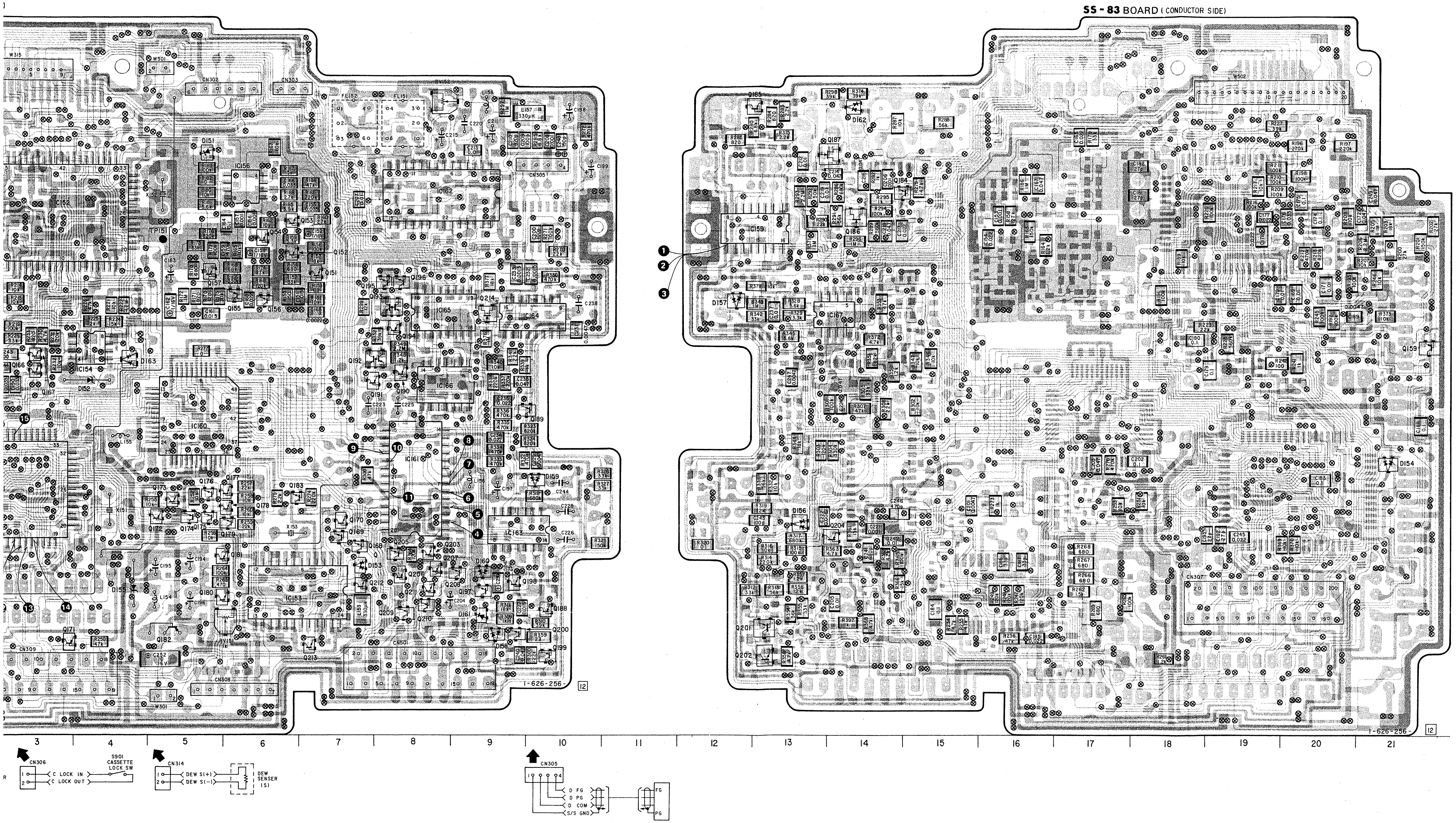

L433
F433
F434
L432
F432
F431
L431
CN431
L434
L435
CN433
C432
C431
CN434
W431
1-626-274-
11
CHASSIS GND
BATT
BATT 6V
NC
BATT GND
CN431 (WHT)
1
3

SS-83 BOARD

CN301	F-1
CN302	B-5
CN303	B-6
CN304	H-1
CN305	C-10
CN306	G-1
CN307	H-19
CN308	I-6
CN309	I-3
CN310	G-1
CN311	D-1
CN314	C-1
CN501	I-8
D151	B-5
D152	E-4
D153	H-7
D154	G-21
D155	H-4
D156	G-13
D157	D-12
D158	I-8
D159	G-10
D160	H-9
D161	I-8
D162	B-14
D163	E-4
IC151	G-2
IC152	C-3
IC153	H-6
IC154	E-4
IC155	D-2
IC156	C-6
IC157	E-2
IC158	E-2
IC159	C-12
IC160	F-5
IC161	F-8
IC162	C-8
IC163	G-9
IC164	D-10
IC165	D-8
IC166	E-8
IC167	E-14
Q151	D-7
Q152	D-6
Q153	C-6
Q154	C-6
Q155	D-6
Q156	D-6
Q157	D-5
Q158	E-1
Q159	E-21
Q160	D-2
Q161	B-2
Q162	E-1
Q163	E-1
Q166	E-3
Q167	E-3
Q168	H-7
Q169	G-7
Q170	G-7
Q171	I-3
Q172	G-5
Q173	G-5
Q174	G-5
Q175	G-5
Q176	G-5
Q177	G-6
Q178	G-6
Q179	G-6
Q180	H-5
Q181	H-5
Q182	I-5
Q183	G-6
Q184	C-14
Q185	B-13
Q186	C-14
Q187	B-14
Q188	H-10
Q189	F-10
Q190	E-8
Q191	E-7
Q192	E-7
Q193	D-8
Q194	E-8
Q195	D-8
Q196	D-8
Q197	H-9
Q198	H-9
Q199	I-10
Q200	I-8
Q201	I-13
Q202	I-13
Q203	H-8
Q204	H-14
Q205	H-8
Q206	H-8
Q207	H-8
Q208	H-9
Q209	I-8
Q210	H-8
Q211	H-8
Q212	H-7
Q213	I-7
Q214	D-9
RV151	I-5
RV152	B-8
TP151	D-5

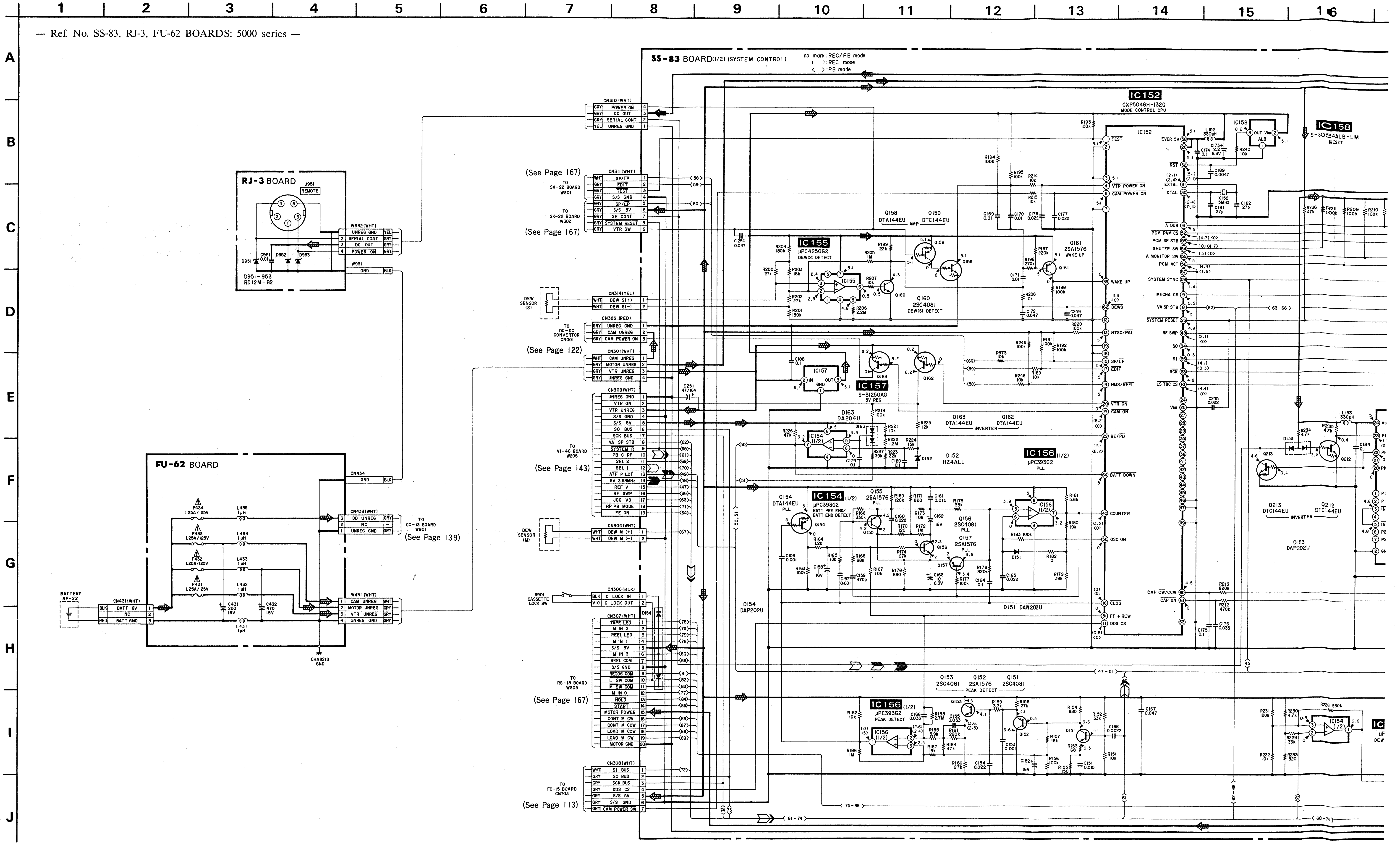
SS-83 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
W315
W501
CN302
CN303
RV152
FL152
FL151
L157 330µH
CN305
IC152
IC156
IC162
IC159
IC155
IC158
IC157
IC154
IC160
IC161
IC165
IC164
IC166
IC163
IC151
IC153
TP151
CN314
CN311
CN301
CN306
CN310
CN304
CN309
CN308
CN501
D151
D152
D163
D155
D153
D160
D161
D156
D159
D157
X151
X152
X153
L151
L154
L155
L156
L159
PS151
W301
RV151
C252 10 16V
1-626-256-
12
CN304
DEW M(+)
DEW M(−)
DEW SENSER (M)
CN306
C LOCK IN
C LOCK OUT
S901 CASSETTE LOCK SW
CN314
DEW S(+)
DEW S(−)
DEW SENSER (S)
CN305
D FG
D PG
D COM
S/S GND
FG
PG
❶
❷
❸
❹
❺
❻
❼
❽
❾
❿
⓫
⓬
⓭
⓮
⓯
⓰
D157


SS-83 BOARD (CONDUCTOR SIDE)
IC152
IC156
IC159
IC160
IC161
IC162
IC163
IC164
IC165
IC166
IC167
IC153
IC154
CN302
CN303
CN305
CN308
CN309
CN50I
CN307
W315
W501
W502
W301
X152
X153
TP151
1-626-256-
12
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
CN306
C LOCK IN
C LOCK OUT
S901
CASSETTE
LOCK SW
CN314
DEW S(+)
DEW S(−)
DEW
SENSER
(S)
CN305
D FG
D PG
D COM
S/S GND
FG
PG

SS-83 (SYSTEM CONTROL), RJ-3 (WIRED REMOTE CONTROL JACK), FU-62 (FUSE, BATTERY) SCHEMATIC DIAGRAM

— Ref. No. SS-83, RJ-3, FU-62 BOARDS: 5000 series —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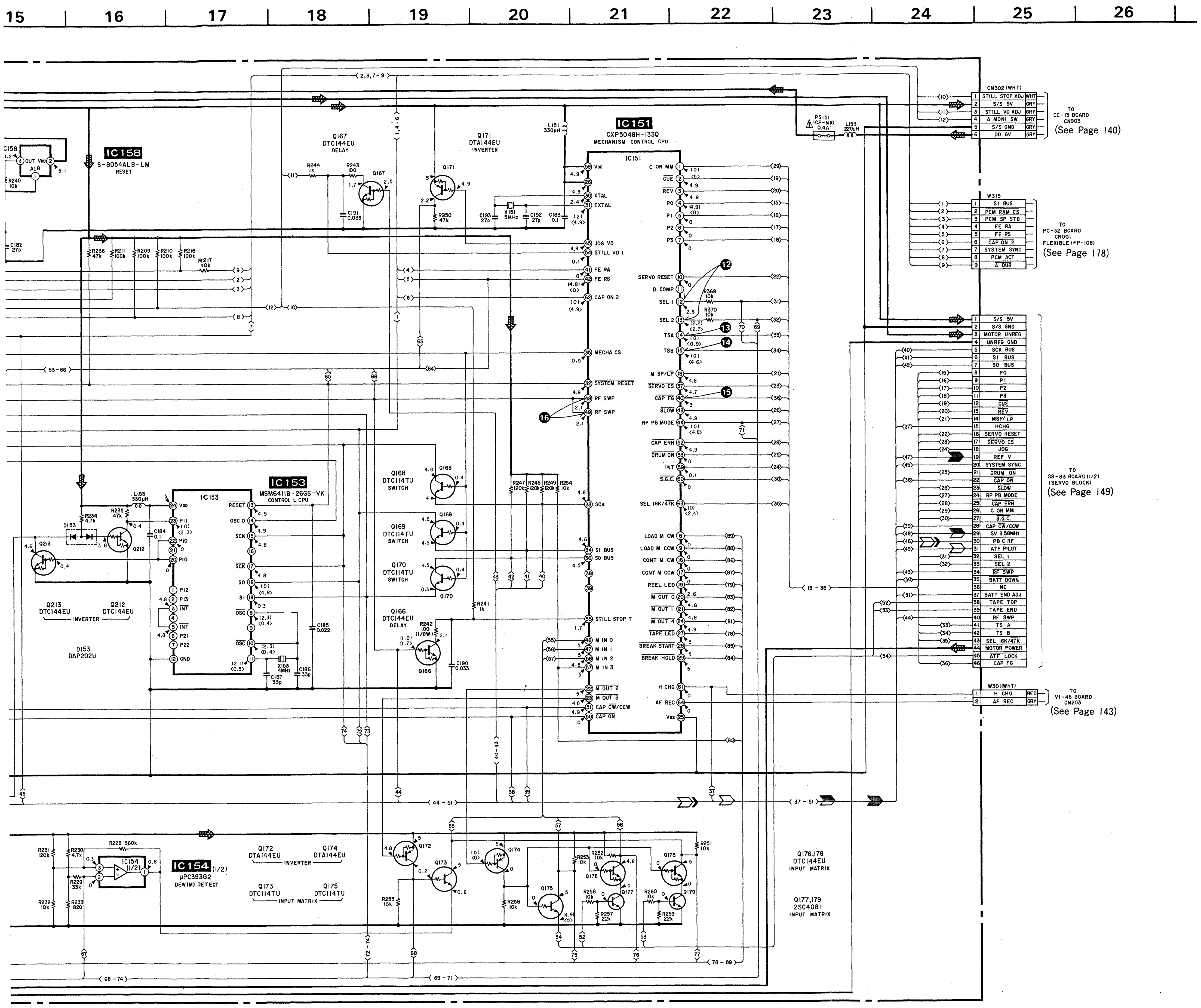
16
A
B
C
D
E
F
G
H
I
J
SS-83 BOARD(1/2) (SYSTEM CONTROL)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
RJ-3 BOARD
J951 REMOTE
D951-953 RD12M-B2
FU-62 BOARD
BATTERY NP-22
CN431(WHT)
BATT 6V
NC
BATT GND
F434 1.25A/125V
F433 1.25A/125V
F432 1.25A/125V
F431 1.25A/125V
L435 1µH
L434 1µH
L433 1µH
L432 1µH
L431 1µH
C431 220 16V
C432 470 16V
CHASSIS GND
W932(WHT)
UNREG GND
SERIAL CONT
DC OUT
POWER ON
W931
GND
CN434
GND
CN433(WHT)
DD UNREG
NC
UNREG GND
TO CC-13 BOARD W901
(See Page 139)
W431 (WHT)
CAM UNREG
MOTOR UNREG
VTR UNREG
UNREG GND
CN310 (WHT)
POWER ON
DC OUT
SERIAL CONT
UNREG GND
CN311(WHT)
SP/LP
EDIT
TEST
S/S GND
S/S 5V
SE CONT
SYSTEM RESET
VTR SW
(See Page 167)
TO SK-22 BOARD W301
TO SK-22 BOARD W302
(See Page 167)
DEW SENSOR (S)
CN314(YEL)
DEW S(+)
DEW S(−)
CN303 (RED)
UNREG GND
CAM UNREG
CAM POWER ON
TO DC-DC CONVERTOR CN001
(See Page 122)
CN301(WHT)
CAM UNREG
MOTOR UNREG
VTR UNREG
UNREG GND
CN309(WHT)
UNREG GND
VTR ON
VTR UNREG
S/S GND
S/S 5V
SO BUS
SCK BUS
VA SP STB
SYSTEM R
PB C RF
SEL 2
SEL 1
ATF PILOT
SV 3.58MHz
REF V
RF SWP
JOG VD
RP PB MODE
FE ON
TO VI-46 BOARD W205
(See Page 143)
DEW SENSOR (M)
CN304(WHT)
DEW M (+)
DEW M (−)
S901 CASSETTE LOCK SW
CN306(BLK)
C LOCK IN
C LOCK OUT
CN307(WHT)
TAPE LED
M IN 2
REEL LED
M IN 1
S/S 5V
M IN 3
REEL COM
S/S GND
RECOG COM
L SW COM
M SW COM
M IN 0
HOLD
START
MOTOR POWER
CONT M CW
CONT M CCW
LOAD M CCW
LOAD M CW
MOTOR GND
TO RS-18 BOARD W305
(See Page 167)
CN308(WHT)
SI BUS
SO BUS
SCK BUS
DDS CS
S/S 5V
S/S GND
CAM POWER SW
TO FC-15 BOARD CN703
(See Page 113)
D154 DAP202U
IC152
CXP5046H-132Q
MODE CONTROL CPU
TEST
VTR POWER ON
CAM POWER ON
WAKE UP
DEWS
NTSC/PAL
SP/LP
EDIT
HMS/REEL
VTR ON
CAM ON
BE/PD
BATT DOWN
COUNTER
OSC ON
CLOG
FF + REW
DDS CS
EVER 5V
RST
EXTAL
XTAL
X152 5MHz
A DUB
PCM RAM CS
PCM SP STB
SHUTER SW
A MONITOR SW
PCM ACT
SYSTEM SYNC
MECHA CS
VA SP STB
SYSTEM RESET
RF SWP
SO
SI
SCK
LS TBC CS
Vss
CAP CW/CCW
CAP ON
IC158
S-8054ALB-LM
RESET
L152 330µH
IC155
µPC4250G2
DEW(S) DETECT
Q158 DTA144EU
Q159 DTC144EU
AMP
Q161 2SA1576 WAKE UP
Q160 2SC4081 DEW(S) DETECT
IC157
S-81250AG
5V REG
Q163
Q162
Q163 DTA144EU
Q162 DTA144EU
INVERTER
D163 DA204U
IC154 (1/2)
D152 HZ4ALL
IC156 (1/2)
µPC393G2
PLL
Q154 DTA144EU PLL
IC154 (1/2)
µPC393G2
BATT PRE END/ BATT END DETECT
Q155 2SA1576 PLL
Q156 2SC4081 PLL
Q157 2SA1576 PLL
D151 DAN202U
Q153 2SC4081
Q152 2SA1576
Q151 2SC4081
PEAK DETECT
IC156 (1/2)
µPC393G2
PEAK DETECT
L153 330µH
Q213 DTC144EU
Q212 DTC144EU
INVERTER
D153 DAP202U
Q213
Q212
R228 560k
IC154 (1/2)
〈 47-51 〉
〈 75-89 〉
〈 61-74 〉
〈 68-74 〉
〈 63-66 〉
〈 50, 51 〉


15
16
17
18
19
20
21
22
23
24
25
26
IC158
S-8054ALB-LM
RESET
IC151
CXP5048H-133Q
MECHANISM CONTROL CPU
IC151
C ON MM
CUE
REV
P0
P1
P2
P3
SERVO RESET
D COMP
SEL 1
SEL 2
TSA
TSB
M SP/LP
SERVO CS
CAP FG
SLOW
RP PB MODE
CAP ERH
DRUM ON
INT
S.G.C.
SEL 16K/47K
LOAD M CW
LOAD M CCW
CONT M CW
CONT M CCW
REEL LED
M OUT 0
M OUT 1
M OUT 4
TAPE LED
BREAK START
BREAK HOLD
H CHG
AF REC
Vss
VDD
XTAL
EXTAL
JOG VD
STILL VD 1
FE RA
FE RS
CAP ON 2
MECHA CS
SYSTEM RESET
RF SWP
RF SWP
SCK
SI BUS
SO BUS
STILL STOP T
M IN 0
M IN 1
M IN 2
M IN 3
M OUT 2
M OUT 3
CAP CW/CCW
CAP ON
L151 330µH
X151 5MHz
IC153
MSM6411B-26GS-VK
CONTROL L CPU
X153 4MHz
Q213 DTC144EU
Q212 DTC144EU
INVERTER
D153 DAP202U
Q167 DTC144EU
DELAY
Q171 DTA144EU
INVERTER
Q168 DTC114TU
SWITCH
Q169 DTC114TU
SWITCH
Q170 DTC114TU
SWITCH
Q166 DTC144EU
DELAY
PS151 ICP-N10 0.4A
L159 220µH
IC154 (1/2)
µPC393G2
DEW(M) DETECT
Q172 DTA144EU
Q174 DTA144EU
INVERTER
Q173 DTC114TU
Q175 DTC114TU
INPUT MATRIX
Q176,178 DTC144EU
INPUT MATRIX
Q177,179 2SC4081
INPUT MATRIX
CN302 (WHT)
1 STILL STOP ADJ WHT
2 S/S 5V GRY
3 STILL VD ADJ GRY
4 A MONI SW GRY
5 S/S GND GRY
6 DD 6V GRY
TO CC-13 BOARD CN903
(See Page 140)
W315
1 SI BUS
2 PCM RAM CS
3 PCM SP STB
4 FE RA
5 FE RS
6 CAP ON 2
7 SYSTEM SYNC
8 PCM ACT
9 A DUB
TO PC-32 BOARD CN001 FLEXIBLE (FP-108)
(See Page 178)
1 S/S 5V
2 S/S GND
3 MOTOR UNREG
4 UNREG GND
5 SCK BUS
6 SI BUS
7 SO BUS
8 P0
9 P1
10 P2
11 P3
12 CUE
13 REV
14 MSP/LP
15 HCHG
16 SERVO RESET
17 SERVO CS
18 JOG
19 REF V
20 SYSTEM SYNC
21 DRUM ON
22 CAP ON
23 SLOW
24 RP PB MODE
25 CAP ERH
26 C ON MM
27 S.G.C.
28 CAP CW/CCW
29 SV 3.58MHz
30 PB C RF
31 ATF PILOT
32 SEL 1
33 SEL 2
34 RF SWP
35 BATT DOWN
36 NC
37 BATT END ADJ
38 TAPE TOP
39 TAPE END
40 RF SWP
41 TS A
42 TS B
43 SEL 16K/47K
44 MOTOR POWER
45 ATF LOCK
46 CAP FG
TO SS-83 BOARD (1/2) (SERVO BLOCK)
(See Page 149)
W301 (WHT)
1 H CHG RED
2 AF REC GRY
TO VI-46 BOARD CN203
(See Page 143)

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ☐ : panel disignation.
- ▬ : B + line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).
- The ● number is the reference number in the waveform diagram.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Signal Path

	REC	REC/PB	PB
Capstan phase servo			⊳⟫
Ref. signal	➧	➧	⊳

SERVO, MECHANISM CONTROL SERVO, MECHANISM CONTROL

RS-18 (CONTROL/LOADING MOTOR, SOLENOID DRIVE), SK-22 (DISPLAY, FUNCTION CONTROL), LS-9 (LOADING SWITCH), LD-1 (TAPE TOP/END LED), MS-4 (MODE SWITCH, CONT

— Ref. No. RS-18, LS-9, LD-1, MS-4 BOARDS: 6000 series, SK-22 BOARD: 7000 series —

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- Digital transistor (SK-22: Q301, 302, 303, RS-18: Q302, 303, 304, 307, 310, 312, 314) transistor with resistors. Refer to the SK-22, RS-18 boards schematic diagrams for digital transistor.

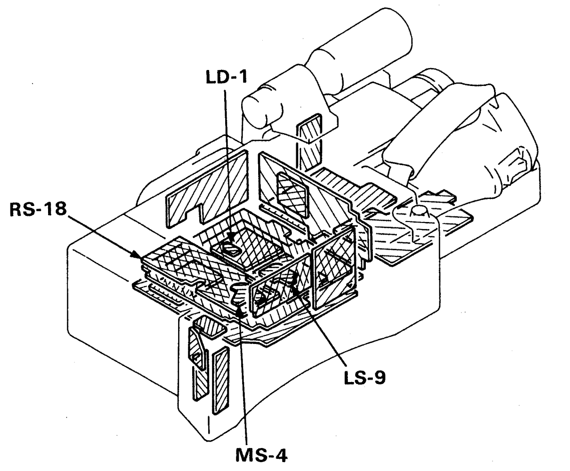
Note

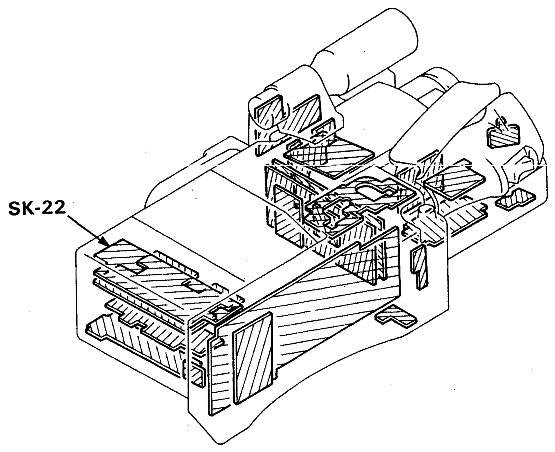
Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

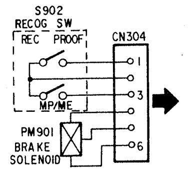
* Pattern being seen in the state from the surface side are indicated in gray pattern.

* Pattern being seen in the state of the rear surface side is indicated in green pattern.

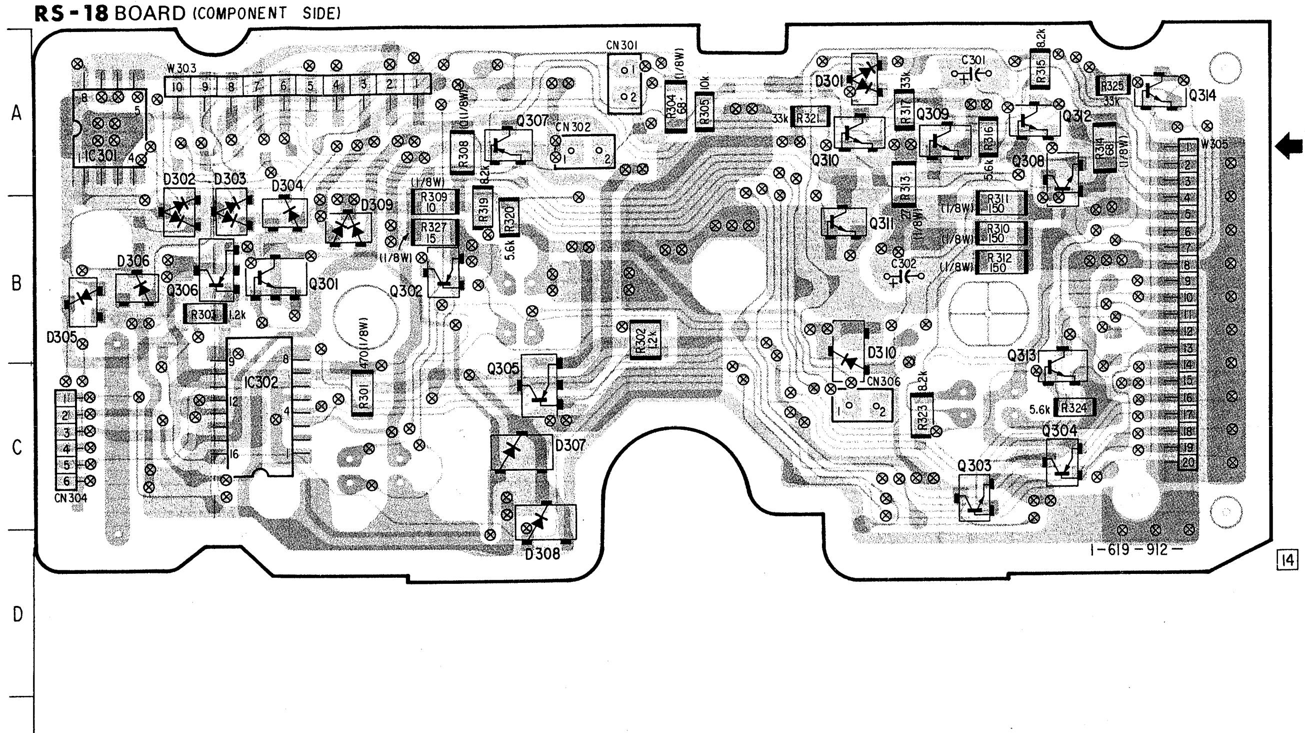

LD-1
RS-18
LS-9
MS-4

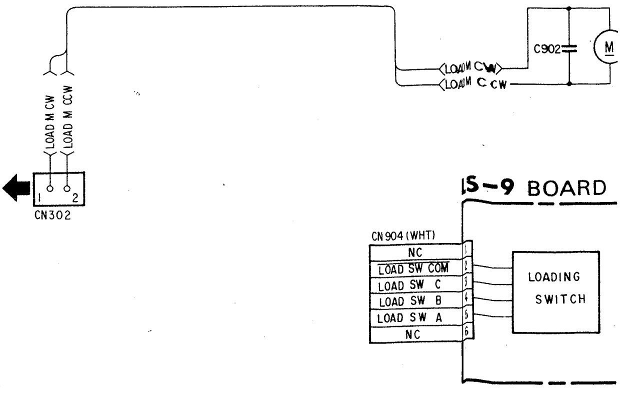


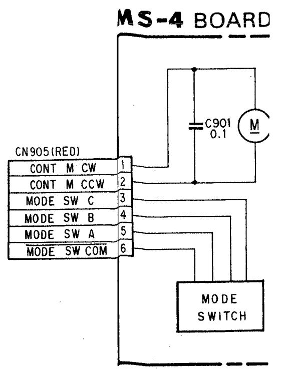
RS-18 BOARD	
CN301	A-4
CN302	A-4
CN304	C-1
CN306	C-5
D301	A-5
D302	B-1
D303	B-2
D304	B-2
D305	B-1
D306	B-1
D307	C-3
D308	C-4
D309	B-2
D310	B-5
IC301	A-1
IC302	C-2
PH301	E-2
PH302	F-3
PH303	F-6
Q301	B-2
Q302	B-3
Q303	C-6
Q304	C-7
Q305	C-4
Q306	B-2
Q307	A-3
Q308	A-7
Q309	A-6
Q310	A-5
Q311	B-5
Q312	A-7
Q313	C-7
Q314	A-7


S902
RECOG SW
REC
PROOF
MP/ME
CN304
1
3
6
PM901
BRAKE
SOLENOID

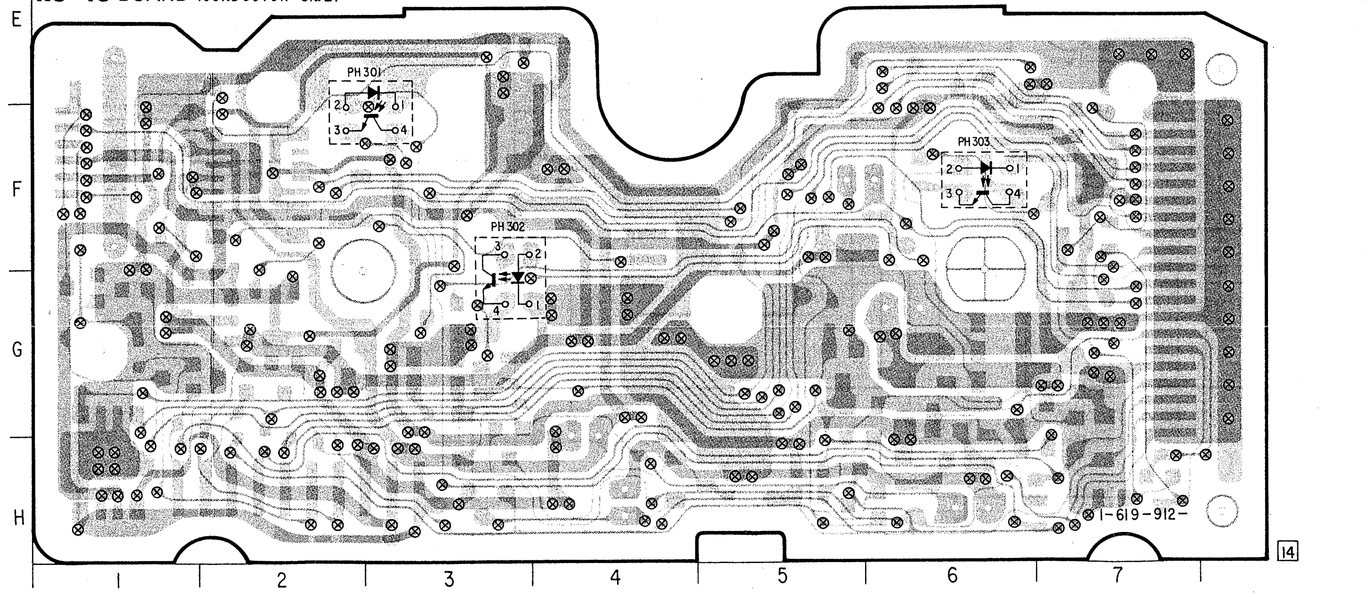
RS-18 BOARD (COMPONENT SIDE)

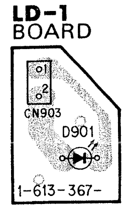

A
B
C
D
IC301
W303
10
9
8
7
6
5
4
3
2
1
D302
D303
D304
D309
D306
D305
Q306
Q301
Q302
R302
12k
IC302
R301
470(1/8W)
CN304
CN301
CN302
Q307
R308
R309
10
R327
15
R319
R320
5.6k
R304
R305
10k
Q305
D307
D308
R322
12k
D301
Q310
R321
33k
R317
Q309
Q312
R316
Q308
R315
8.2k
R325
Q314
W305
C301
C302
Q311
R313
R311
150
R310
150
R312
150
(1/8W)
D310
CN306
Q313
R323
8.2k
R324
5.6k
Q304
Q303
1-619-912-
14


LOAD M CW
LOAD M CCW
1
2
CN302
LOAD M CW
LOAD M C CW
C902
M
LS-9 BOARD
CN904 (WHT)
NC
LOAD SW COM
LOAD SW C
LOAD SW B
LOAD SW A
NC
1
2
3
4
5
6
LOADING SWITCH

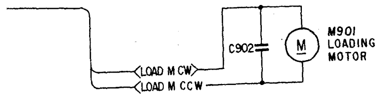

MS-4 BOARD
C901
0.1
M
CN905 (RED)
CONT M CW
CONT M CCW
MODE SW C
MODE SW B
MODE SW A
MODE SW COM
1
2
3
4
5
6
MODE SWITCH

RS-18 BOARD (CONDUCTOR SIDE)

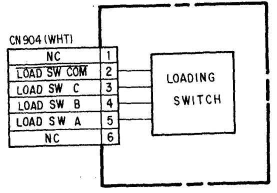

E
F
G
H
PH301
PH302
PH303
1-619-912-
14
1
2
3
4
5
6
7


LD-1 BOARD
CN903
1
2
D901
1-613-367-

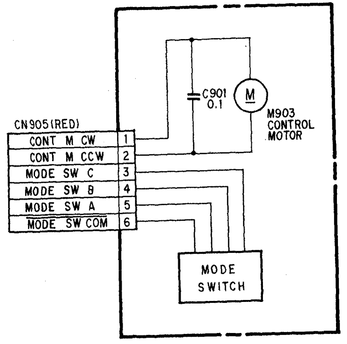
(MODE SWITCH, CONTROL MOTOR) PRINTED WIRING BOARD


C902
M901
LOADING
MOTOR
LOAD M CW
LOAD M CCW

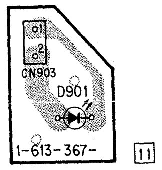
LS-9 BOARD


CN904 (WHT)
NC 1
LOAD SW COM 2
LOAD SW C 3
LOAD SW B 4
LOAD SW A 5
NC 6
LOADING SWITCH

MS-4 BOARD

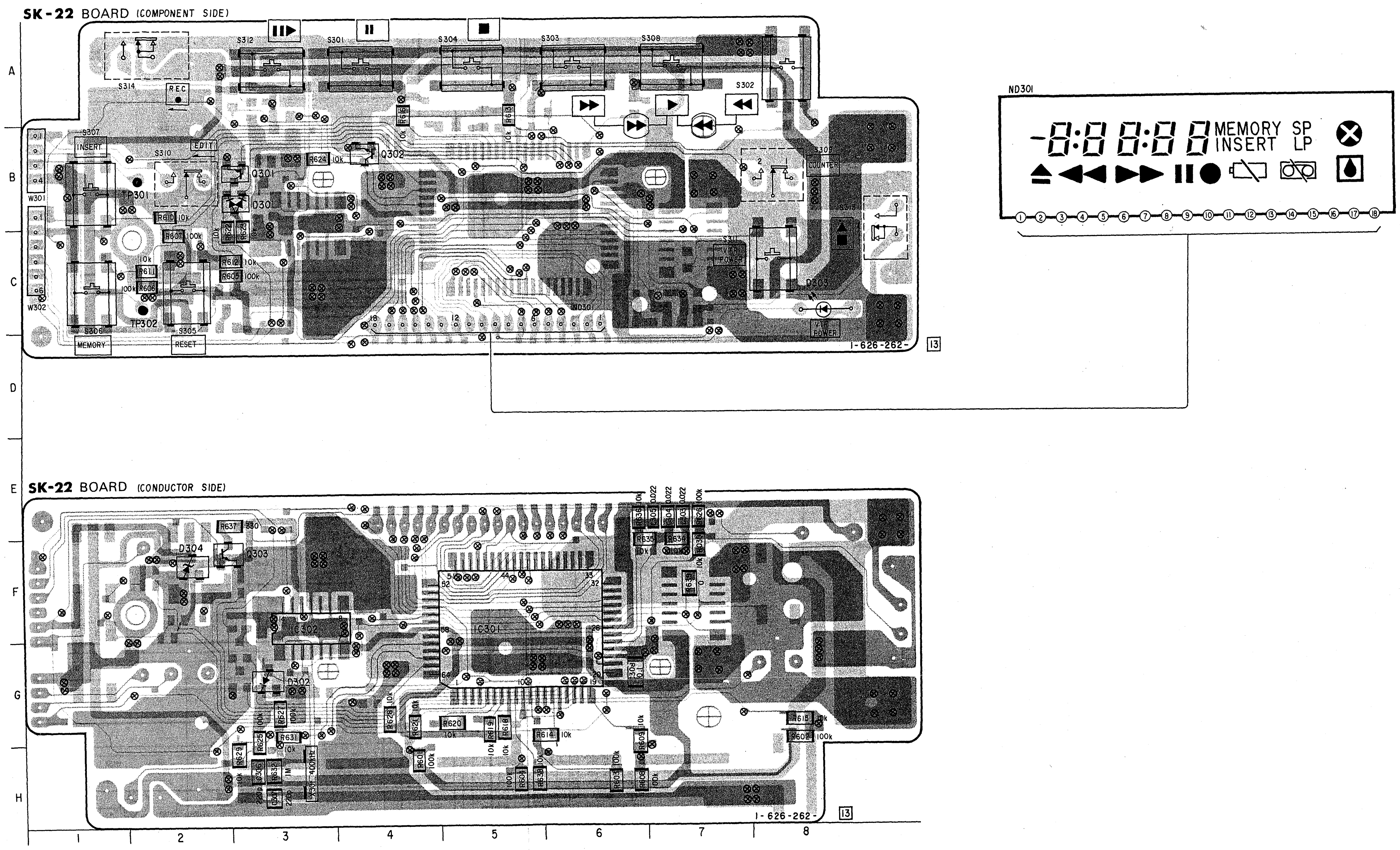

C901
0.1
M903
CONTROL
MOTOR
CN905 (RED)
CONT M CW 1
CONT M CCW 2
MODE SW C 3
MODE SW B 4
MODE SW A 5
MODE SW COM 6
MODE SWITCH

LD-1 BOARD


CN903
D901
1-613-367-
11

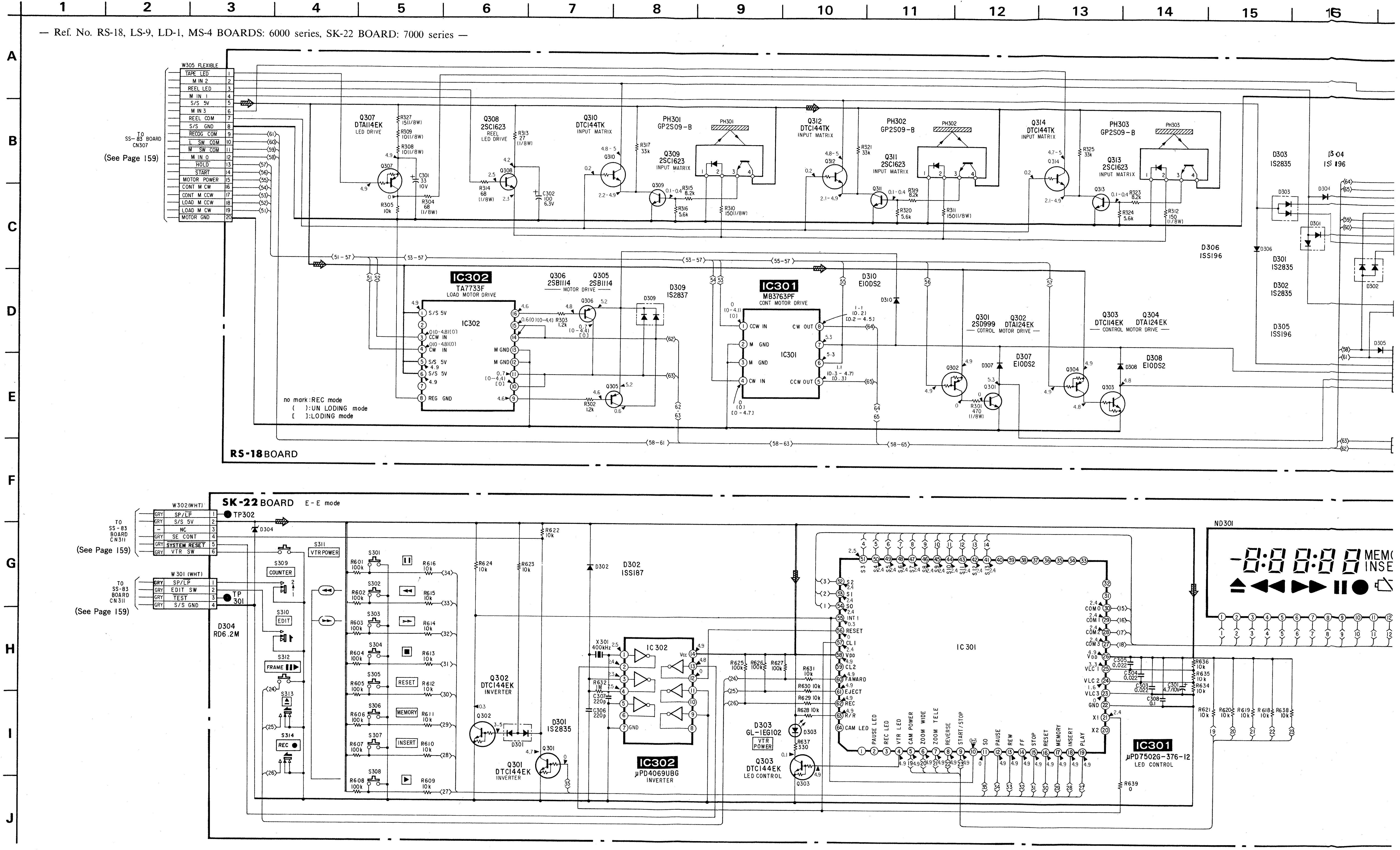
SK-22 BOARD

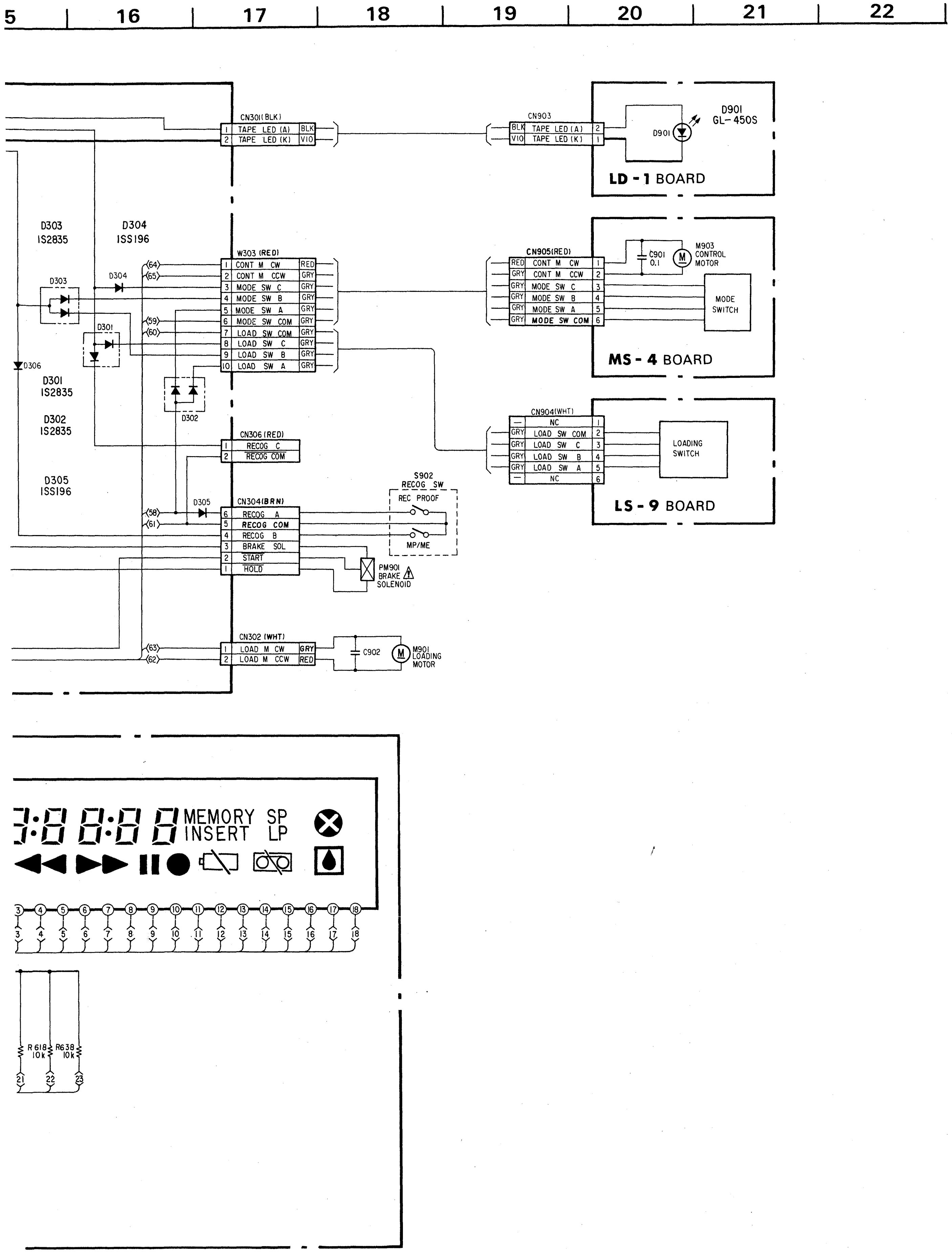
D301	B-3
D302	G-3
D303	C-8
D304	F-2
IC301	G-5
IC302	F-3
Q301	B-3
Q302	B-4
Q303	F-2
TP301	B-2
TP302	C-2


SK-22 BOARD (COMPONENT SIDE)
S312
S301
S304
S303
S308
S314
REC
S302
S307
INSERT
EDIT
S310
Q301
Q302
D301
TP301
TP302
W301
W302
S306
MEMORY
S305
RESET
COUNTER
POWER
D303
ND301
1-626-262-
13
ND301
MEMORY SP
INSERT LP
SK-22 BOARD (CONDUCTOR SIDE)
D304
Q303
IC302
IC301
D302
1-626-262-
13
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8

RS-18 (CONTROL/LOADING MOTOR, SOLENOID DRIVE), SK-22 (DISPLAY, FUNCTION CONTROL), LS-9 (LOADING SWITCH), LD-1 (TAPE TOP/END LED), MS-4 (MODE SWITCH, CONTROL MOTOR) SCHEMATIC DIAGRAM

— Ref. No. RS-18, LS-9, LD-1, MS-4 BOARDS: 6000 series, SK-22 BOARD: 7000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
W305 FLEXIBLE
TAPE LED
M IN 2
REEL LED
M IN 1
S/S 5V
M IN 3
REEL COM
S/S GND
RECOG COM
L SW COM
M SW COM
M IN 0
HOLD
START
MOTOR POWER
CONT M CW
CONT M CCW
LOAD M CCW
LOAD M CW
MOTOR GND
TO SS-83 BOARD CN307
(See Page 159)
Q307 DTA114EK LED DRIVE
Q308 2SC1623 REEL LED DRIVE
Q310 DTC144TK INPUT MATRIX
PH301 GP2S09-B
Q309 2SC1623 INPUT MATRIX
Q312 DTC144TK INPUT MATRIX
PH302 GP2S09-B
Q311 2SC1623 INPUT MATRIX
Q314 DTC144TK INPUT MATRIX
PH303 GP2S09-B
Q313 2SC1623 INPUT MATRIX
D303 1S2835
D304 1S196
IC302 TA7733F LOAD MOTOR DRIVE
Q306 2SB1114
Q305 2SB1114
MOTOR DRIVE
D309 1S2837
IC301 MB3763PF CONT MOTOR DRIVE
D310 E10DS2
Q301 2SD999
Q302 DTA124EK
COTROL MOTOR DRIVE
Q303 DTC114EK
Q304 DTA124EK
CONTROL MOTOR DRIVE
D306 1SS196
D301 1S2835
D302 1S2835
D305 1SS196
D307 E10DS2
D308 E10DS2
no mark: REC mode
( ): UN LODING mode
[ ]: LODING mode
RS-18 BOARD
SK-22 BOARD E-E mode
W302 (WHT)
SP/LP
S/S 5V
NC
SE CONT
SYSTEM RESET
VTR SW
TP302
D304
TO SS-83 BOARD CN311
(See Page 159)
W301 (WHT)
SP/LP
EDIT SW
TEST
S/S GND
TP301
D304 RD6.2M
S309 COUNTER
S310 EDIT
S311 VTR POWER
S312 FRAME
S313
S314 REC
S301
S302
S303
S304
S305 RESET
S306 MEMORY
S307 INSERT
S308
D302 1SS187
Q302 DTC144EK INVERTER
Q301 DTC144EK INVERTER
D301 1S2835
X301 400kHz
IC302 μPD4069UBG INVERTER
D303 GL-1EG102
VTR POWER
Q303 DTC144EK LED CONTROL
IC301 μPD7502G-376-12 LED CONTROL
ND301
PAUSE LED
REC LED
VTR LED
CAM POWER
ZOOM WIDE
ZOOM TELE
REVERSE
START/STOP
SO
PAUSE
REW
FF
STOP
RESET
MEMORY
INSERT
PLAY
CAM LED
RESET
FAWARD
EJECT
REC
R/R


5
16
17
18
19
20
21
22
CN301(BLK)
TAPE LED (A)
TAPE LED (K)
BLK
VIO
D303
1S2835
D304
1SS196
D301
1S2835
D302
1S2835
D305
1SS196
D306
W303 (RED)
CONT M CW
CONT M CCW
MODE SW C
MODE SW B
MODE SW A
MODE SW COM
LOAD SW COM
LOAD SW C
LOAD SW B
LOAD SW A
CN306 (RED)
RECOG C
RECOG COM
CN304(BRN)
RECOG A
RECOG COM
RECOG B
BRAKE SOL
START
HOLD
S902
RECOG SW
REC PROOF
MP/ME
PM901
BRAKE
SOLENOID
CN302 (WHT)
LOAD M CW
LOAD M CCW
C902
M901
LOADING
MOTOR
CN903
D901
D901
GL-450S
LD-1 BOARD
CN905(RED)
C901
0.1
M903
CONTROL
MOTOR
MODE
SWITCH
MS-4 BOARD
CN904(WHT)
NC
LOADING
SWITCH
LS-9 BOARD
MEMORY SP
INSERT LP
R618 10k
R638 10k

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel disignation.
- ▬ : B + line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- The ● number is the reference number in the waveform diagram.
- Digital transistor (PC-32: Q003, 004, 005, 006, 007, 010, 011, 017, 018, 020, 023, 024, 028) transistor with resistors. Refer to the PC-32 board schematic diagrams for digital transistor.

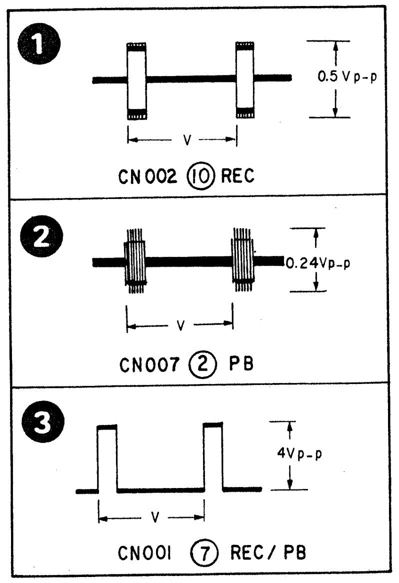
Note

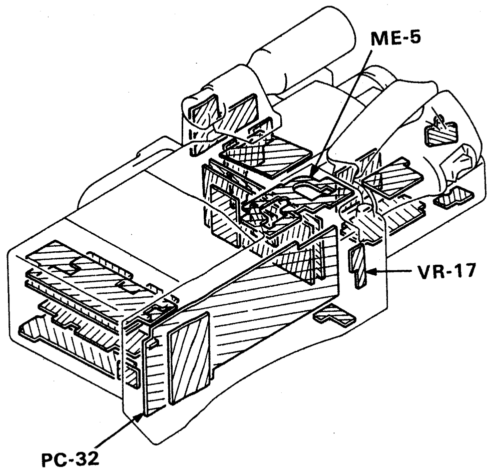
Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

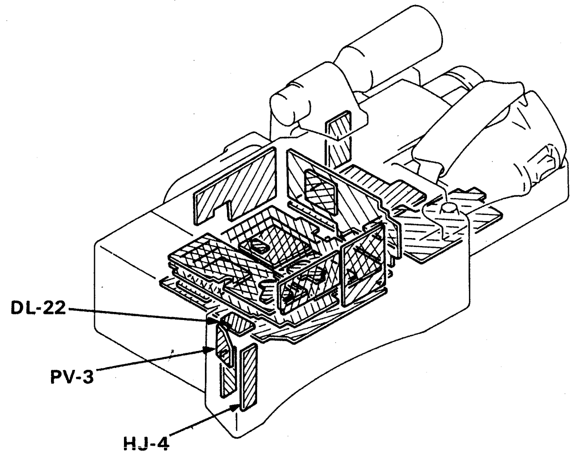
Regarding color indication of pattern

- * Pattern being seen in the state from the surface side are indicated in gray pattern.
- * Pattern being seen in the state of the rear surface side is indicated in green pattern.

PC-32 BOARD




ME-5
VR-17
PC-32


DL-22
PV-3
HJ-4

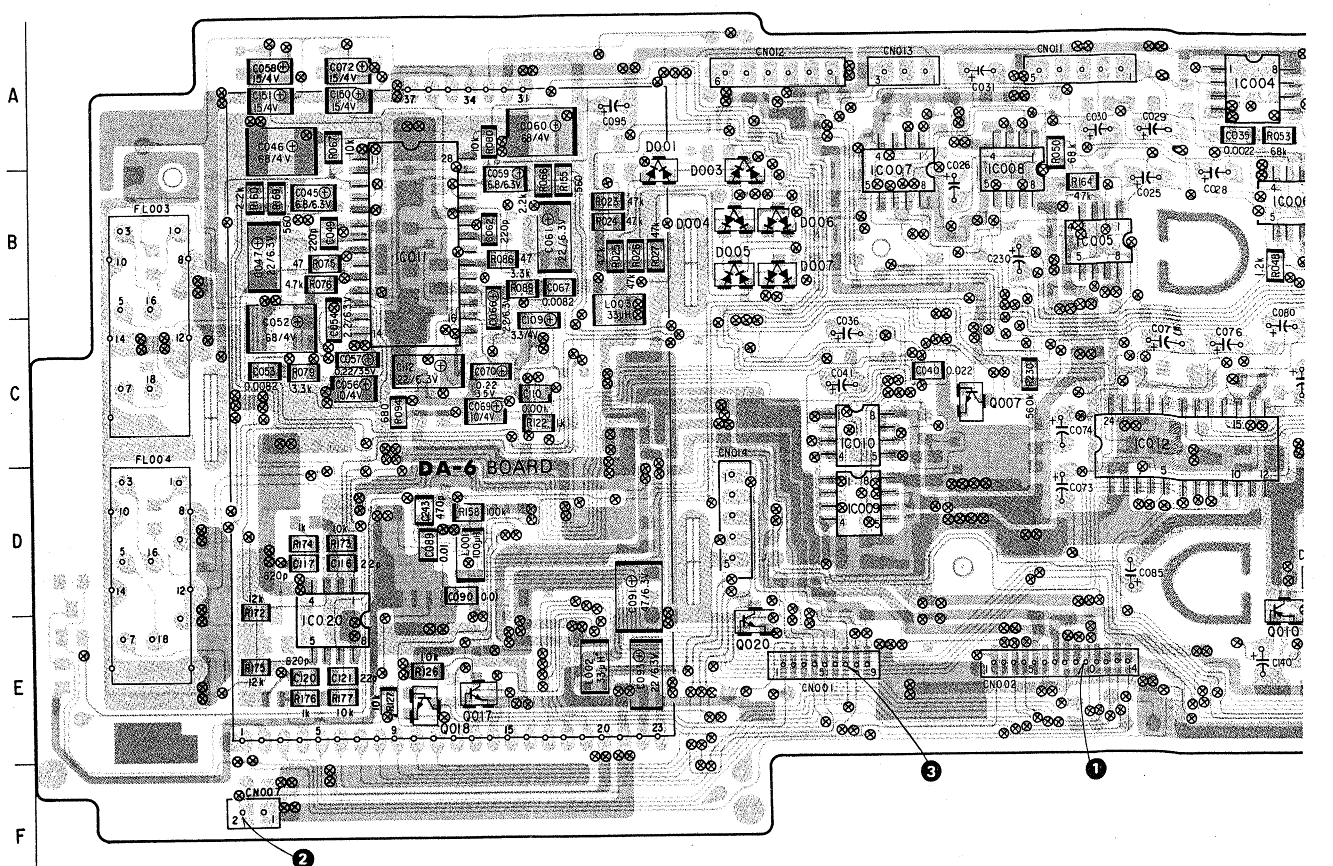
PC-32 (PCM AUDIO), DL-22 (AUDIO DUBBING SWITCH), HJ-4 (HEAD PHONES/MIC JACK), ME-5 (LEVEL METER), PV-3 (HEAD

— Ref. No. PC-32 BOARDS: 6000 series, HJ-4 BOARD: 6400 series, ME-5 BOARD: 6600 series, DL-22, VR-17 BOARDS: 7000 series, PV-3 BOARD: 80

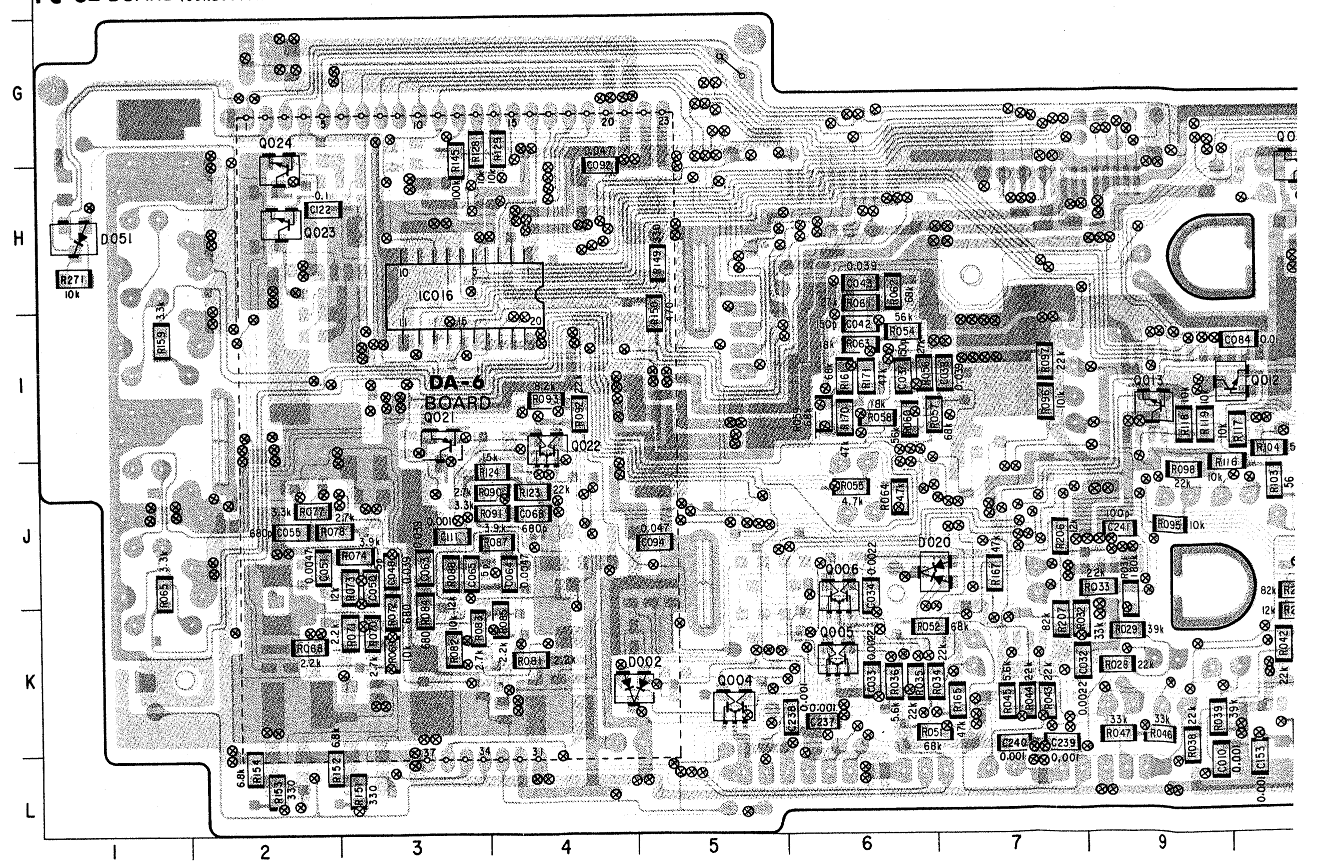
PC-32 BOARD

CN001	E-6
CN002	E-7
CN003	B-16
CN004	E-10
CN005	E-11
CN006	E-12
CN007	F-2
CN008	A-13
CN011	A-9
CN012	A-6
CN013	A-6
CN014	D-5
CN030	E-16
CN031	E-13
D001	B-5
D002	K-4
D003	B-5
D004	B-5
D005	B-5
D006	B-6
D007	B-6
D008	H-10
D009	D-10
D012	E-13
D013	I-13
D014	I-13
D015	I-13
D020	J-6
D050	I-16
D121	K-10
IC002	B-12
IC004	A-10
IC005	B-9
IC006	B-10
IC007	B-6
IC008	B-7
IC009	D-6
IC010	C-6
IC011	B-3
IC012	C-9
IC014	C-12
IC015	C-12
IC016	H-3
IC020	E-2
IC021	B-13
Q003	J-12
Q004	K-5
Q005	K-6
Q006	J-6
Q007	C-7
Q009	E-10
Q010	E-10
Q011	H-10
Q012	I-10
Q013	I-9
Q014	D-11
Q015	I-11
Q016	D-11
Q016	D-11
Q017	E-3
Q018	E-3
Q019	H-11
Q020	E-5
Q021	I-3
Q022	I-4
Q023	H-2
Q024	H-2
Q025	C-14
Q026	C-15
Q027	H-14
Q028	D-13
Q029	D-14
Q030	A-11
Q031	B-11
RV002	C-11
RV003	C-12
TP001	J-6

PC-32 BOARD (COMPONENT SIDE)

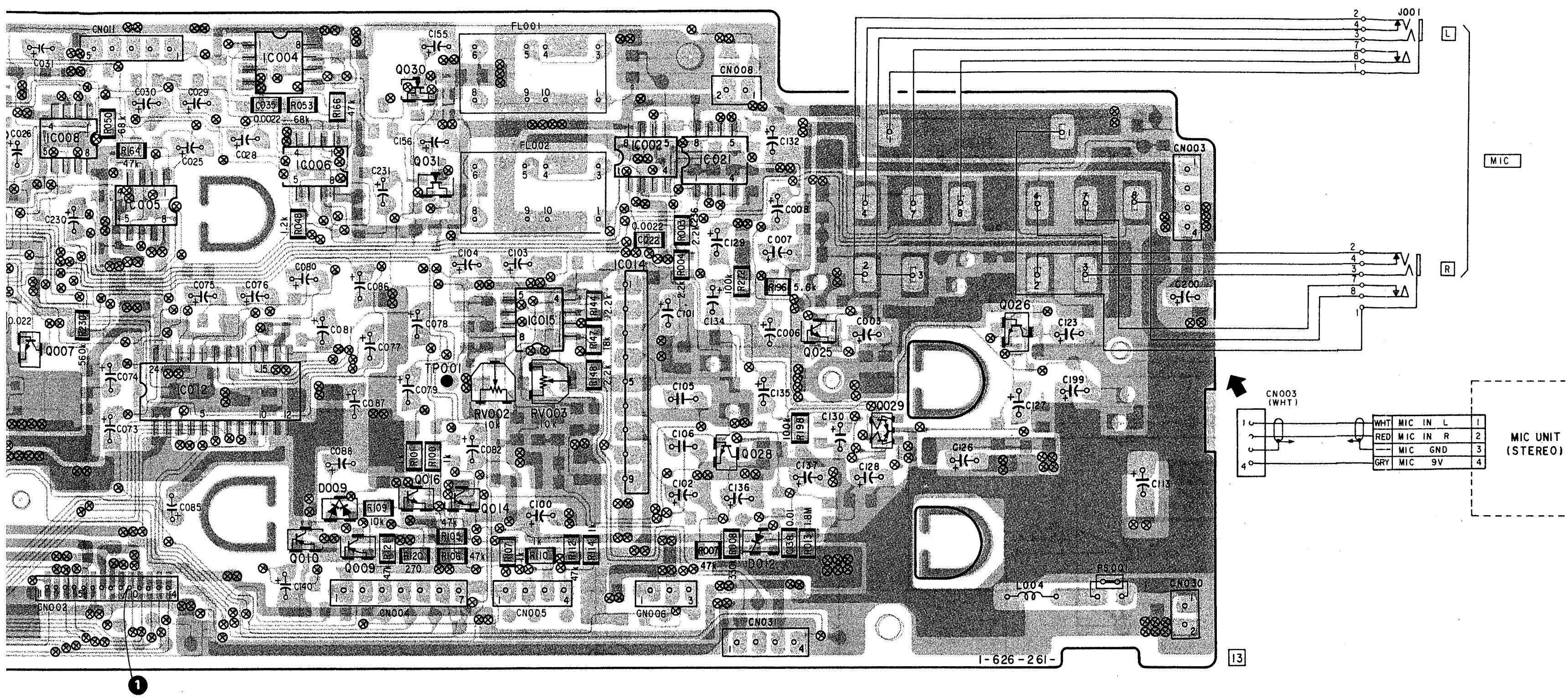

A
B
C
D
E
F
FL003
FL004
DA-6 BOARD
IC001
IC004
IC005
IC007
IC008
IC009
IC010
IC012
IC020
D001
D003
D004
D005
D006
D007
Q007
Q010
Q017
Q018
Q020
CN001
CN002
CN007
CN011
CN012
CN013
CN014
❶
❷
❸

PC-32 BOARD (CONDUCTOR SIDE)

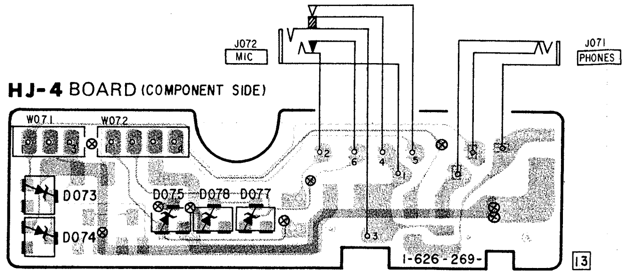

G
H
I
J
K
L
1
2
3
4
5
6
7
9
DA-6 BOARD
IC016
D002
D020
D051
Q004
Q005
Q006
Q012
Q013
Q021
Q022
Q023
Q024

.EVEL METER), PV-3 (HEAD PHONE LEVEL CONTROL), VR-17 (AUDIO REC LEVEL CONTROL) PRINTED WIRING BOARD

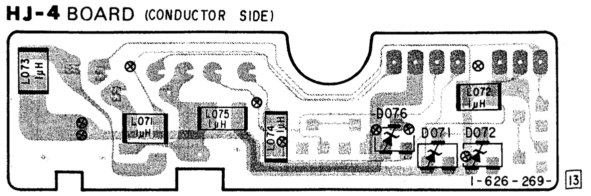
DS: 7000 series, PV-3 BOARD: 8000 series —


J001
L
R
MIC
CN003 (WHT)
WHT MIC IN L 1
RED MIC IN R 2
— MIC GND 3
GRY MIC 9V 4
MIC UNIT (STEREO)
CN001
IC004
IC006
IC008
IC005
IC002
IC014
IC015
FL001
FL002
CN008
CN003
CN002
CN004
CN005
CN006
CN031
CN030
TP001
RV001
RV002
Q007
Q009
Q010
Q016
Q025
Q026
Q028
Q029
Q030
Q031
D009
D012
D014
L004
PS001
1-626-261-
13
❶

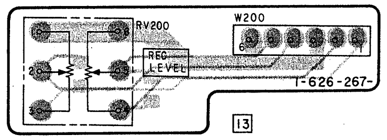
HJ-4 BOARD (COMPONENT SIDE)


J072
MIC
J071
PHONES
W071
W072
D073
D074
D075
D078
D077
1-626-269-
13

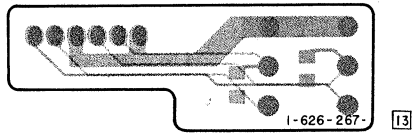
HJ-4 BOARD (CONDUCTOR SIDE)


L073 1μH
L071 1μH
L075 1μH
L074 1μH
L072 1μH
D076
D071
D072
1-626-269-
13

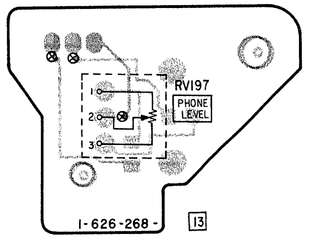
VR-17 BOARD (COMPONENT SIDE)


RV200
W200
REC LEVEL
1-626-267-
13

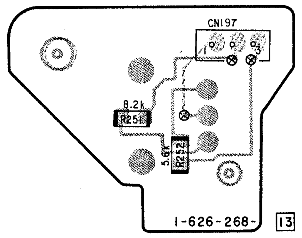
VR-17 BOARD (CONDUCTOR SIDE)

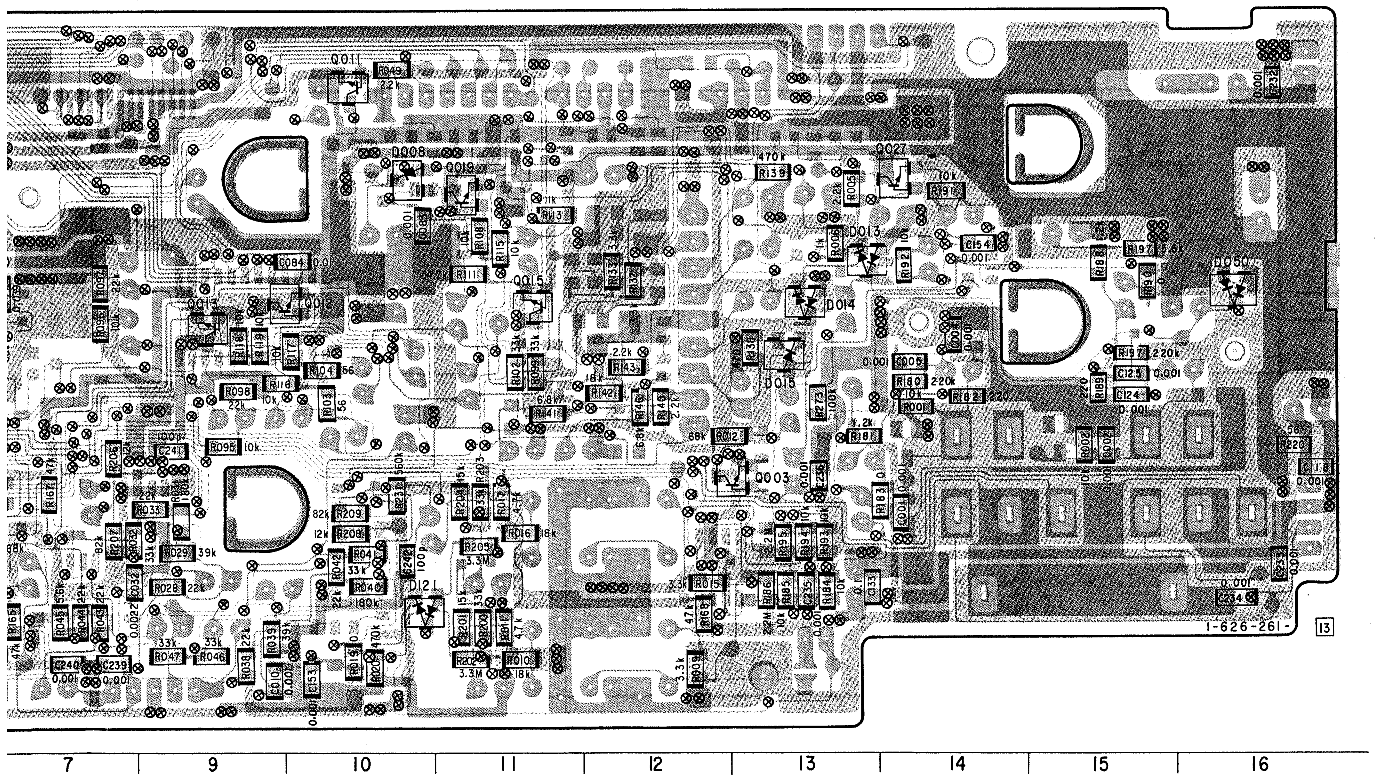


PV-3 BOARD (COMPONENT SIDE)

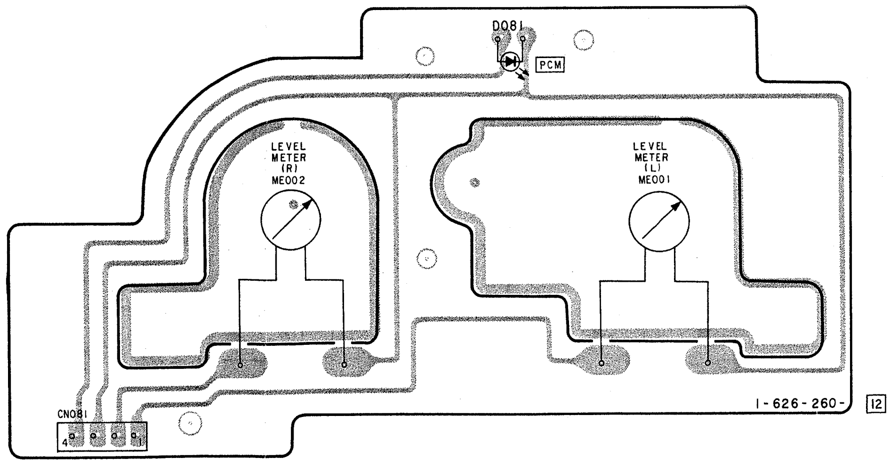

RV197
PHONE LEVEL
1-626-268-
13

PV-3 BOARD (CONDUCTOR SIDE)

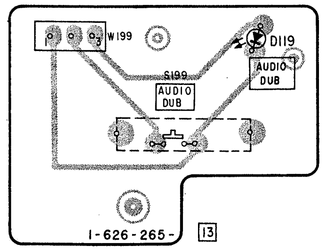

CN197
8.2k
R251
5.6k
R252
1-626-268-
13


Q011
Q008
Q019
Q027
Q013
Q014
Q015
Q003
Q012
Q050
D012
D014
D015
1-626-261-
13
7
9
10
11
12
13
14
15
16

ME-5 BOARD (COMPONENT SIDE)

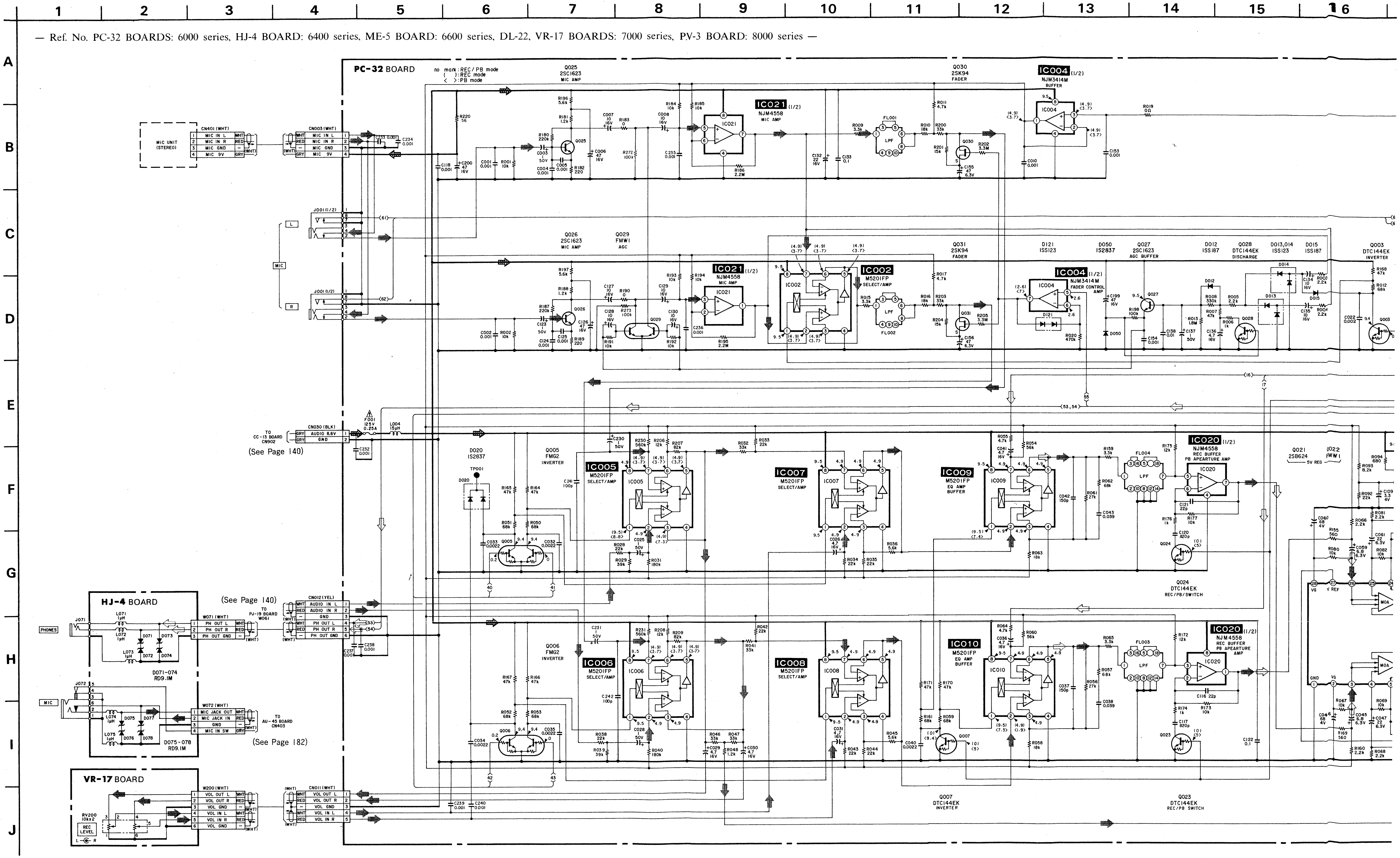

D081
PCM
LEVEL METER (R) ME002
LEVEL METER (L) ME001
CN081
1-626-260-
12

DL-22 BOARD (CONDUCTOR SIDE)

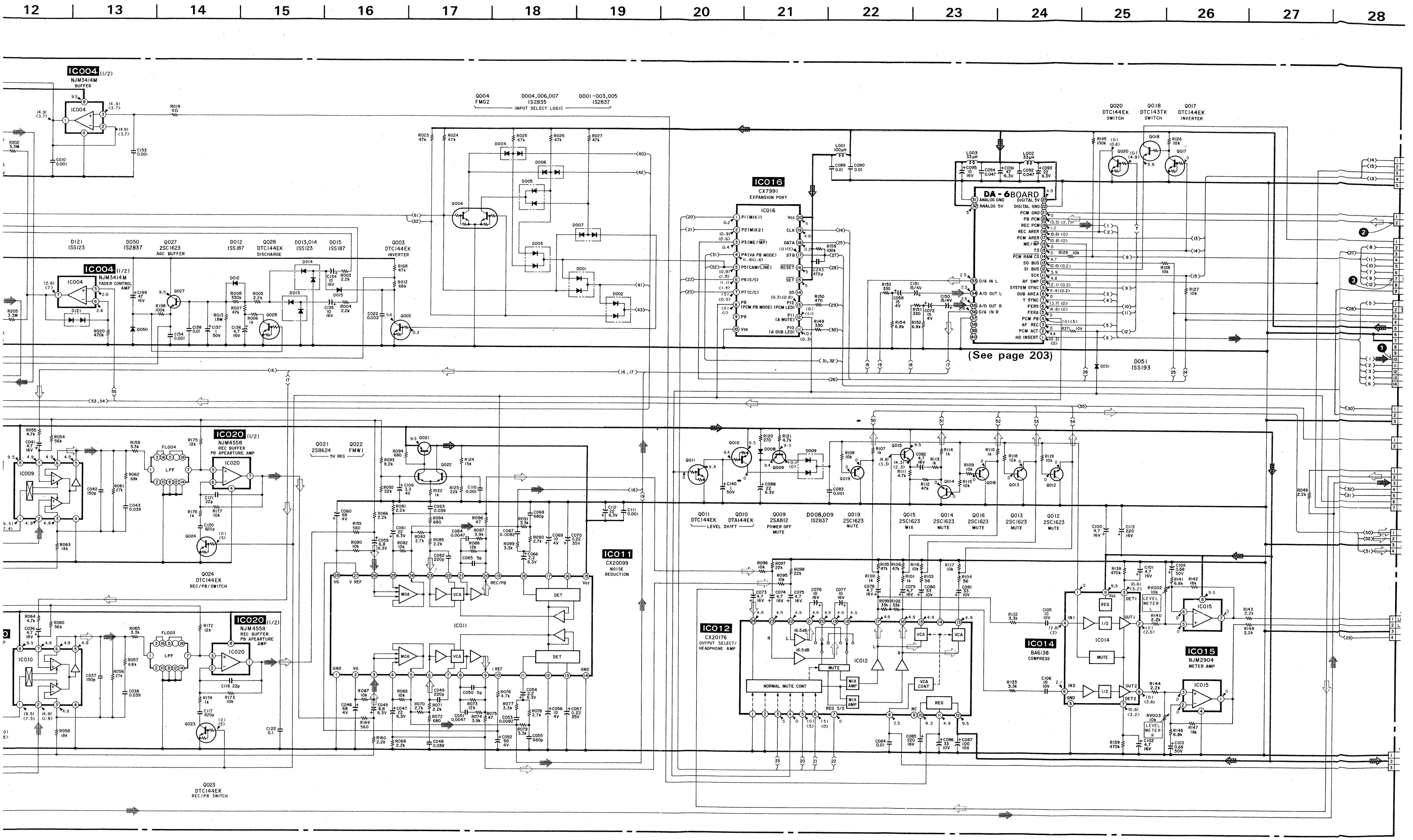

W199
D119
S199
AUDIO DUB
AUDIO DUB
1-626-265-
13

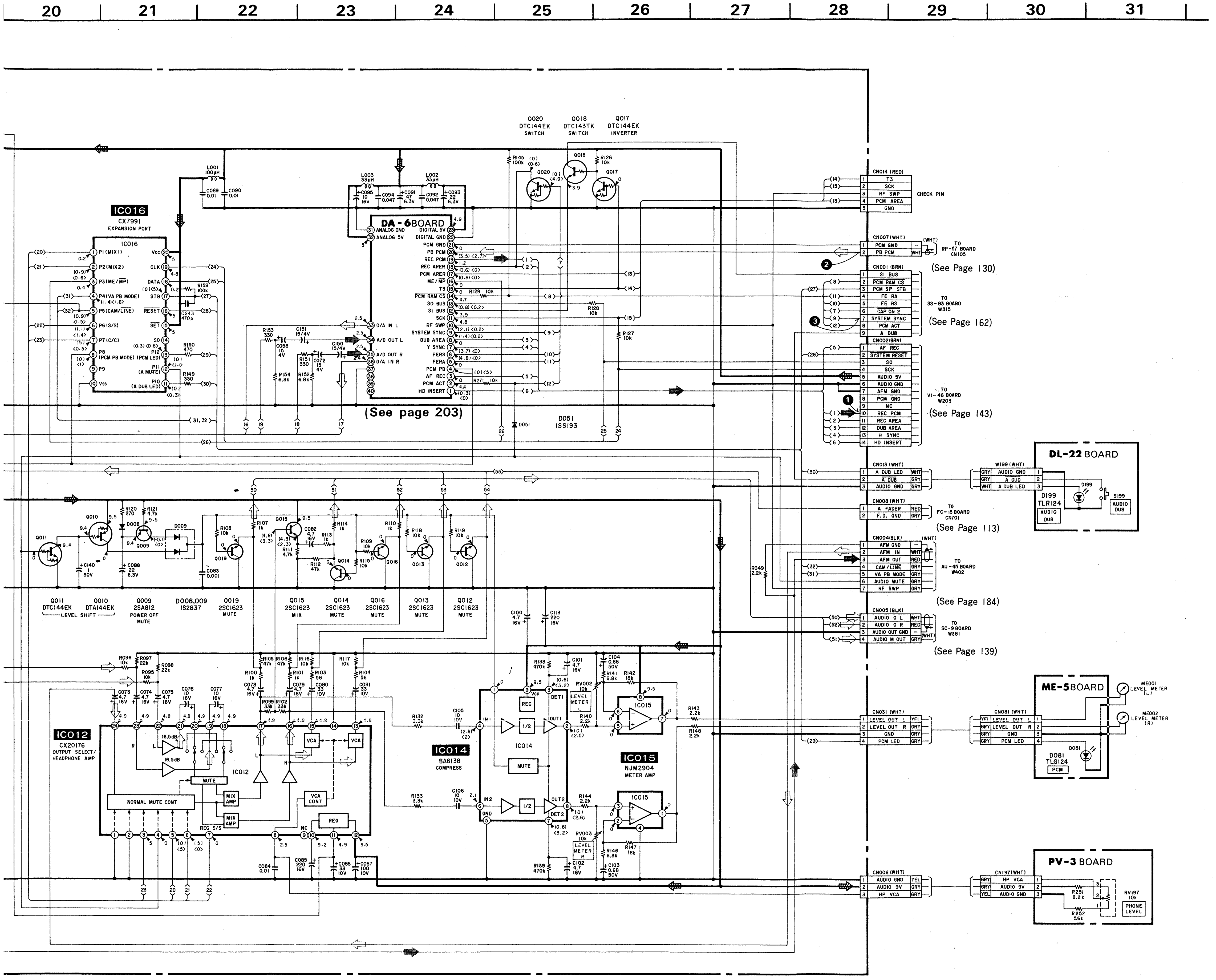
PC-32 (PCM AUDIO), DL-22 (AUDIO DUBBING SWITCH), HJ-4 (HEAD PHONES/MIC JACK), ME-5 (LEVEL METER), PV-3 (HEAD PHONE LEVEL CONTROL), VR-17 (AUDIO REC LEVEL CONTROL) SCHEMATIC DIAGRAM

— Ref. No. PC-32 BOARDS: 6000 series, HJ-4 BOARD: 6400 series, ME-5 BOARD: 6600 series, DL-22, VR-17 BOARDS: 7000 series, PV-3 BOARD: 8000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
PC-32 BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
MIC UNIT (STEREO)
CN401 (WHT)
MIC IN L
MIC IN R
MIC GND
MIC 9V
CN003 (WHT)
J001 (1/2)
J001 (2/2)
L
R
MIC
Q025 2SC1623 MIC AMP
Q026 2SC1623 MIC AMP
Q029 FMW1 AGC
IC021 (1/2) NJM4558 MIC AMP
Q030 2SK94 FADER
Q031 2SK94 FADER
IC004 (1/2) NJM3414M BUFFER
IC004 (1/2) NJM3414M FADER CONTROL AMP
IC002 M5201FP SELECT/AMP
FL001 LPF
FL002 LPF
D121 1SS123
D050 1S2837
Q027 2SC1623 AGC BUFFER
D012 1SS187
Q028 DTC144EK DISCHARGE
D013,014 1SS123
D015 1SS187
Q003 DTC144EK INVERTER
TO CC-15 BOARD CN902
(See Page 140)
CN030 (BLK)
AUDIO 8.6V
GND
F001 125V 0.25A
L004 15μH
D020 1S2837
TP001
Q005 FMG2 INVERTER
Q006 FMG2 INVERTER
IC005 M5201FP SELECT/AMP
IC006 M5201FP SELECT/AMP
IC007 M5201FP SELECT/AMP
IC008 M5201FP SELECT/AMP
IC009 M5201FP EQ AMP BUFFER
IC010 M5201FP EQ AMP BUFFER
FL004 LPF
FL003 LPF
IC020 (1/2) NJM4558 REC BUFFER PB APEARTURE AMP
Q024 DTC144EK REC/PB/SWITCH
Q023 DTC144EK REC/PB SWITCH
Q007 DTC144EK INVERTER
Q021 2SB624
Q022 FMW1
5V REG
HJ-4 BOARD
(See Page 140)
TO PJ-19 BOARD W061
PHONES
J071
L071 1μH
L072 1μH
L073 1μH
D071-074 RD9.1M
W071 (WHT)
PH OUT L
PH OUT R
PH OUT GND
CN012 (YEL)
AUDIO IN L
AUDIO IN R
GND
PH OUT L
PH OUT R
PH OUT GND
MIC
J072
L074 1μH
L075 1μH
D075-078 RD9.1M
W072 (WHT)
MIC JACK OUT
MIC JACK IN
GND
MIC IN SW
TO AU-45 BOARD CN403
(See Page 182)
VR-17 BOARD
W200 (WHT)
VOL OUT L
VOL OUT R
VOL GND
VOL IN L
VOL IN R
VOL GND
CN011 (WHT)
RV200 10k×2
REC LEVEL

DIO REC LEVEL CONTROL) SCHEMATIC DIAGRAM


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
IC004 (1/2) NJM3414M BUFFER
IC004 (1/2) NJM3414M FADER CONTROL AMP
Q004 FMG2
D004,006,007 1S2835
D001-003,005 1S2837
INPUT SELECT LOGIC
D121 1SS123
D050 1S2837
Q027 2SC1623 AGC BUFFER
D012 1SS187
Q028 DTC144EK DISCHARGE
D013,014 1SS123
D015 1SS187
Q003 DTC144EK INVERTER
IC016 CX7991 EXPANSION PORT
DA-6BOARD
(See page 203)
Q020 DTC144EK SWITCH
Q018 DTC143TK SWITCH
Q017 DTC144EK INVERTER
D051 1SS193
IC020 (1/2) NJM4558 REC BUFFER PB APEARTURE AMP
IC020 (1/2) NJM4558 REC BUFFER PB APEARTURE AMP
IC009
IC010
LPF
FL004
FL003
Q024 DTC144EK REC/PB/SWITCH
Q023 DTC144EK REC/PB SWITCH
Q021 2SB624
Q022 FMW1
5V REG
IC011 CX20099 NOISE REDUCTION
MOA
VCA
DET
Q011 DTC144EK
Q010 DTA144EK
LEVEL SHIFT
Q009 2SA812 POWER OFF MUTE
D008,009 1S2837
Q019 2SC1623 MUTE
Q015 2SC1623 MIX
Q014 2SC1623 MUTE
Q016 2SC1623 MUTE
Q013 2SC1623 MUTE
Q012 2SC1623 MUTE
IC012 CX20176 OUTPUT SELECT/ HEADPHONE AMP
NORMAL MUTE CONT
MUTE
MIX AMP
VCA CONT
REG
IC014 BA6138 COMPRESS
IC015 NJM2904 METER AMP
LEVEL METER L
LEVEL METER R
RV002 10k
RV003 10k


20
21
22
23
24
25
26
27
28
29
30
31
IC016
CX7991
EXPANSION PORT
P1(MIX1)
P2(MIX2)
P3(ME/MP)
P4(VA PB MODE)
P5(CAM/LINE)
P6(S/S)
P7(C/C)
P8 (PCM PB MODE)
P9
Vss
Vcc
CLK
DATA
STB
RESET
SET
SO
P12 (PCM LED)
P11 (A MUTE)
P10 (A DUB LED)
L001 100μH
Q020 DTC144EK SWITCH
Q018 DTC143TK SWITCH
Q017 DTC144EK INVERTER
L003 33μH
L002 33μH
DA-6BOARD
ANALOG GND
ANALOG 5V
DIGITAL 5V
DIGITAL GND
PCM GND
PB PCM
REC PCM
REC ARER
PCM ARER
ME/MP
T3
PCM RAM CS
SO BUS
SI BUS
SCK
RF SWP
SYSTEM SYNC
DUB AREA
Y SYNC
FERS
FERA
PCM PB
AF REC
PCM ACT
HD INSERT
D/A IN L
A/D OUT L
A/D OUT R
D/A IN R
(See page 203)
D051 1SS193
Q011 DTC144EK
Q010 DTA144EK
LEVEL SHIFT
Q009 2SA812 POWER OFF MUTE
D008,009 1S2837
Q019 2SC1623 MUTE
Q015 2SC1623 MIX
Q014 2SC1623 MUTE
Q016 2SC1623 MUTE
Q013 2SC1623 MUTE
Q012 2SC1623 MUTE
IC012
CX20176
OUTPUT SELECT/HEADPHONE AMP
NORMAL MUTE CONT
MUTE
MIX AMP
VCA
VCA CONT
REG
REG S/S
IC014
BA6138
COMPRESS
IN1
IN2
OUT1
OUT2
DET1
DET2
1/2
MUTE
LEVEL METER L
LEVEL METER R
RV002 10k
RV003 10k
IC015
NJM2904
METER AMP
CN014 (RED)
T3
SCK
RF SWP
PCM AREA
GND
CHECK PIN
CN007 (WHT)
PCM GND
PB PCM
TO RP-57 BOARD CN105
(See Page 130)
CN001 (BRN)
SI BUS
PCM RAM CS
PCM SP STB
FE RA
FE RS
CAP ON 2
SYSTEM SYNC
PCM ACT
A DUB
TO SS-83 BOARD W315
(See Page 162)
CN002 (BRN)
AF REC
SYSTEM RESET
SO
SCK
AUDIO 5V
AUDIO GND
AFM GND
PCM GND
NC
REC PCM
REC AREA
DUB AREA
H SYNC
HD INSERT
TO VI-46 BOARD W203
(See Page 143)
CN013 (WHT)
A DUB LED
A DUB
AUDIO GND
W199 (WHT)
AUDIO GND
A DUD
A DUB LED
DL-22 BOARD
D199 TLR124
AUDIO DUB
S199 AUDIO DUB
CN008 (WHT)
A FADER
F.D. GND
TO FC-15 BOARD CN701
(See Page 113)
CN004 (BLK)
AFM GND
AFM IN
AFM OUT
CAM/LINE
VA PB MODE
AUDIO MUTE
RF SWP
TO AU-45 BOARD W402
(See Page 184)
CN005 (BLK)
AUDIO O L
AUDIO O R
AUDIO OUT GND
AUDIO M OUT
TO SC-9 BOARD W381
(See Page 139)
ME-5BOARD
ME001 LEVEL METER (L)
ME002 LEVEL METER (R)
CN031 (WHT)
LEVEL OUT L
LEVEL OUT R
GND
PCM LED
CN081 (WHT)
D081 TLG124
PCM
PV-3 BOARD
CN006 (WHT)
AUDIO GND
AUDIO 9V
HP VCA
CN197 (WHT)
R251 8.2k
R252 5.6k
RV197 10k
PHONE LEVEL

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ☐ : panel disignation.
- ☐ : adjustment for repair.
- ▬ : B + line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇛ indicates the I/O direction of B lines (+, −).
- The ● number is the reference number in the waveform diagram.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Note: Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

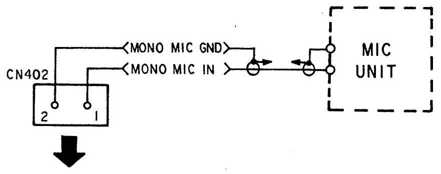
- **Signal path**

  ➡ :REC AUDIO SIGNAL

  ⇨ :PB AUDIO SIGNAL

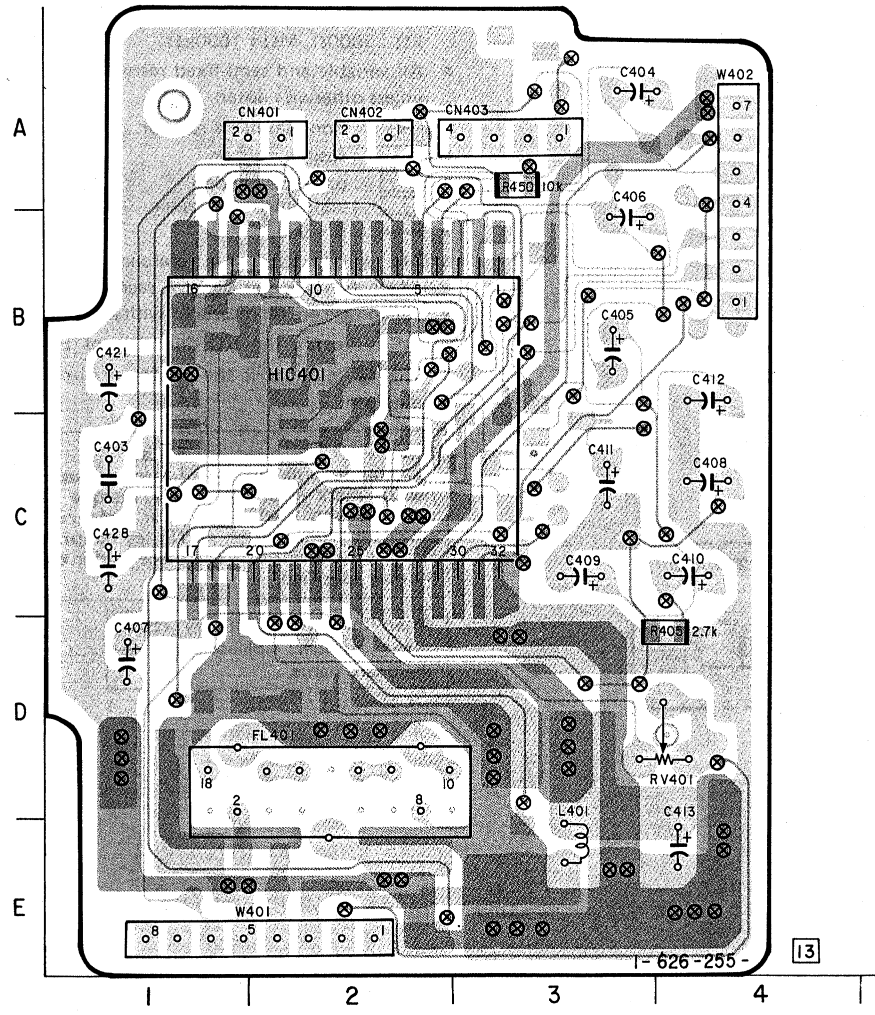
AU-45 (AFM AUDIO), MS-11 (NARRATION MIC SWITCH) PRINTED WIRING BAORD

— Ref. No. AU-45, MS-11 BOARDS: 8000 series —

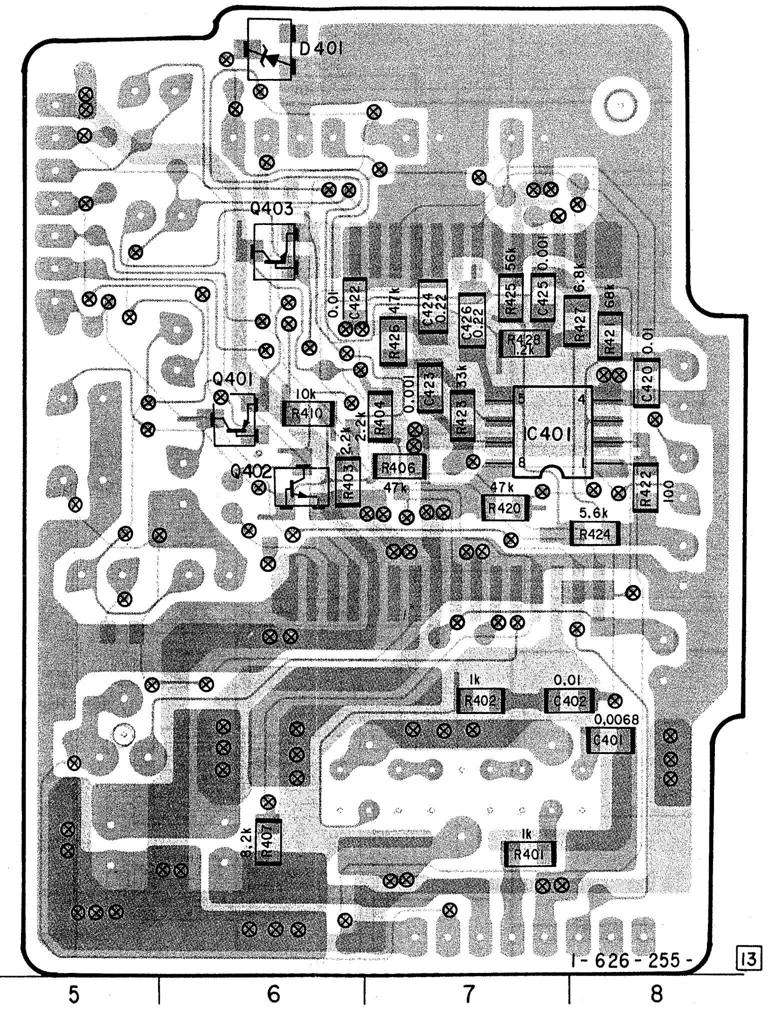

CN402
2
1
MONO MIC GND
MONO MIC IN
MIC UNIT

AU-45 BOARD	
CN401	A-2
CN402	A-2
CN403	A-3
D401	A-6
HIC401	B-2
IC401	C-7
Q401	B-6
Q402	C-6
Q403	B-6
RV401	D-4

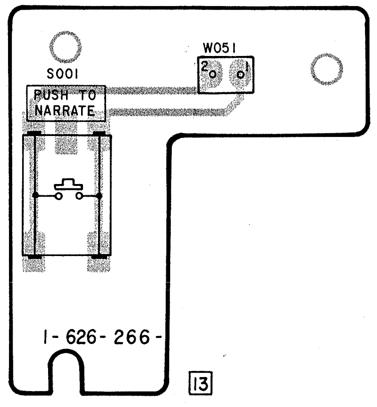
AU-45 BOARD (COMPONENT SIDE)


A
B
C
D
E
CN401
CN402
CN403
C404
W402
R450
10k
C406
C405
C412
C411
C408
HIC401
C421
C403
C428
C407
C409
C410
R405
2.7k
FL401
RV401
L401
C413
W401
1-626-255-
13
1
2
3
4

AU-45 BOARD (CONDUTOR SIDE)


D401
Q403
Q401
Q402
IC401
R410
10k
R403
R404
R405
R406
47k
R420
47k
R421
R422
100
R423
R424
5.6k
R425
R426
47k
R427
R428
C420
C421
C422
C423
C424
0.22
C425
C426
0.22
0.01
0.001
56k
6.8k
68k
33k
2.2k
R402
1k
C402
0.01
C401
0.0068
R401
1k
R409
8.2k
1-626-255-
13
5
6
7
8

MS-11 BOARD (COMPONENT SIDE)


S001
PUSH TO NARRATE
W051
1-626-266-
13

Note (Printed Wiring Board)

- ● ○— : indicates a lead wire mounted on the component side.
- ● ●— : indicates a lead wire mounted on the conductor side.
- ● ⊗ : Through hole.
- ● ▨ : Pattern from the side which enables seeing.
- ● ░ : Pattern of the rear side.
- ● Digital transistor (AU-45: Q401, 402) transistor with resistors. Refer to AU-45 board schematic diagrams for digital transistor.

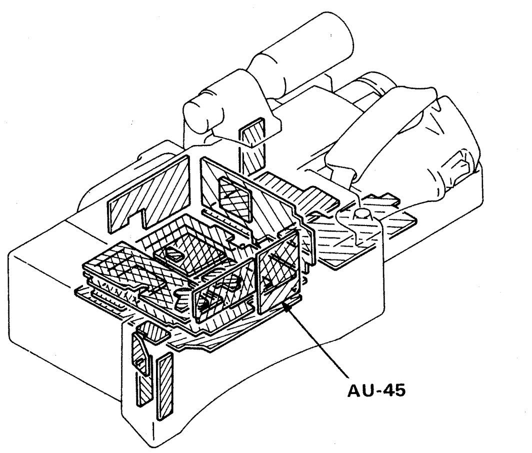
Note

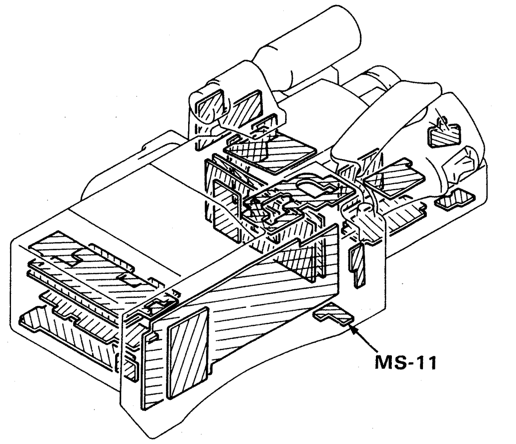
Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

* Pattern being seen in the state from the surface side are indicated in gray pattern.

* Pattern being seen in the state of the rear surface side is indicated in green pattern.





AU-45 (AFM AUD

1

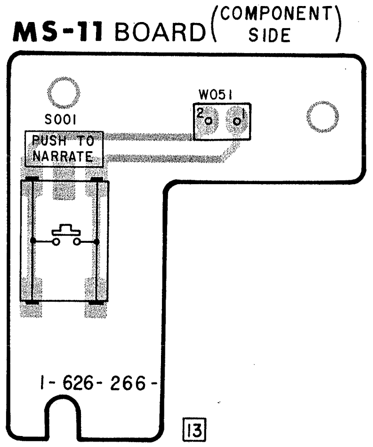
— Ref. No. AU-4

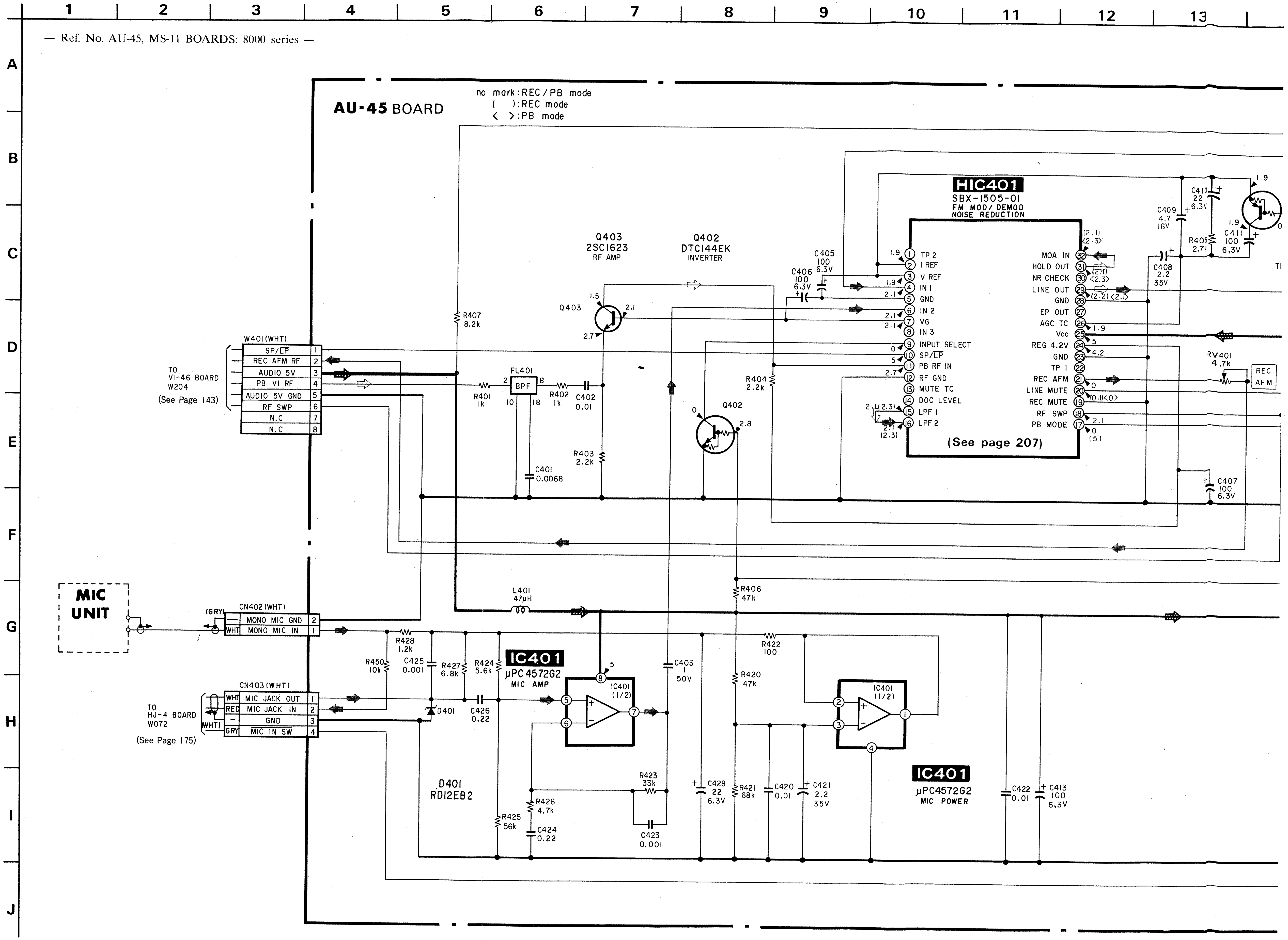
A
B
C
D
E
F
G
H
I
J

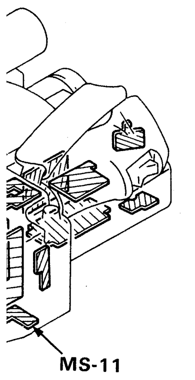
MIC
UNIT

AU-45 (AFM AUDIO), MS-11 (NARRATION MIC SWITCH) SCHEMATIC DIAGRAM

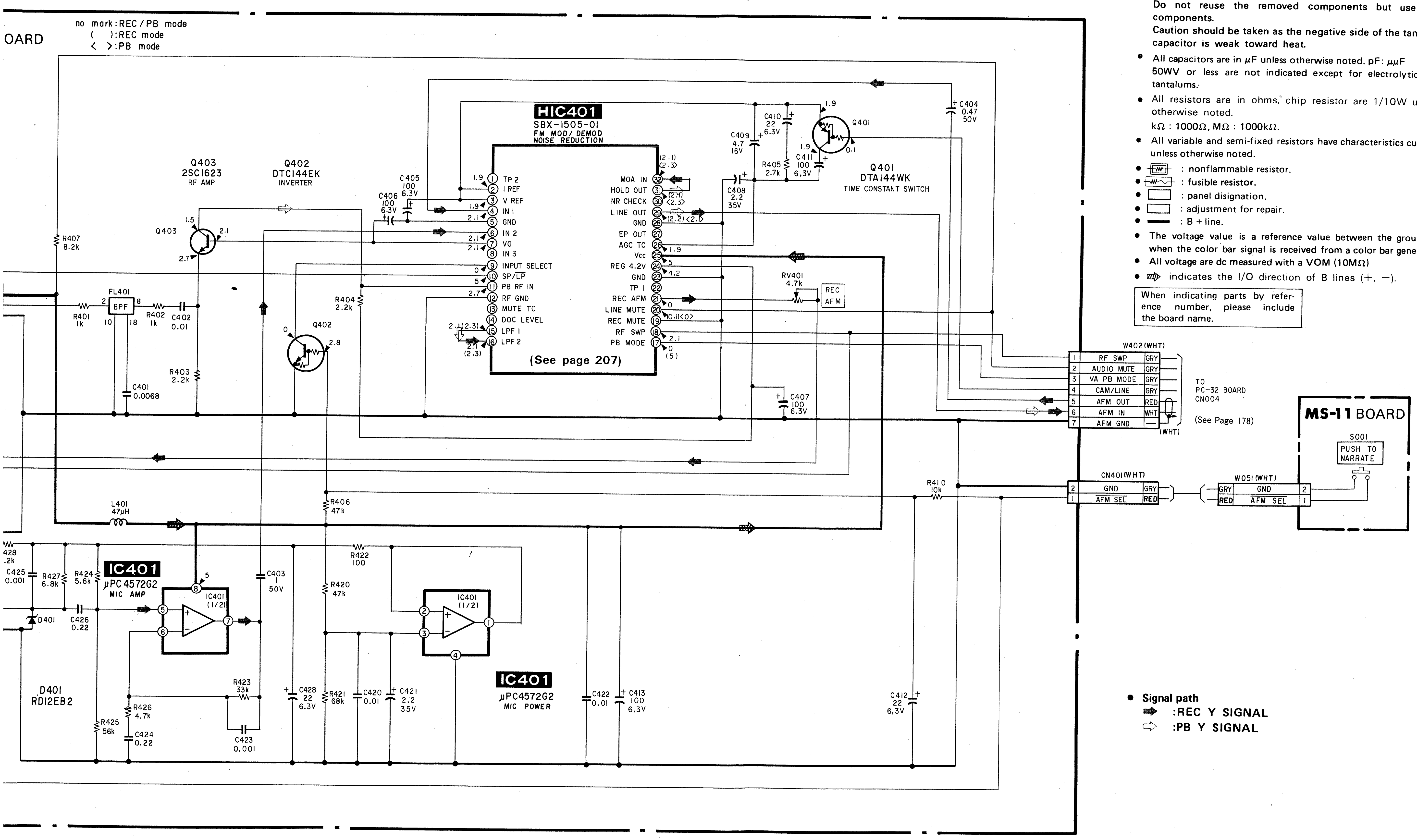
— Ref. No. AU-45, MS-11 BOARDS: 8000 series —


MS-11 BOARD (COMPONENT SIDE)
W051
S001
PUSH TO NARRATE
1-626-266-
13


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
AU-45 BOARD
no mark: REC/PB mode
( ): REC mode
< >: PB mode
HIC401
SBX-1505-01
FM MOD/DEMOD
NOISE REDUCTION
(See page 207)
TP 2
I REF
V REF
IN I
GND
IN 2
VG
IN 3
INPUT SELECT
SP/LP
PB RF IN
RF GND
MUTE TC
DOC LEVEL
LPF I
LPF 2
MOA IN
HOLD OUT
NR CHECK
LINE OUT
GND
EP OUT
AGC TC
Vcc
REG 4.2V
GND
TP I
REC AFM
LINE MUTE
REC MUTE
RF SWP
PB MODE
Q403
2SC1623
RF AMP
Q402
DTC144EK
INVERTER
C405 100 6.3V
C406 100 6.3V
C409 4.7 16V
C410 22 6.3V
C411 100 6.3V
R405 2.7k
C408 2.2 35V
C407 100 6.3V
RV401 4.7k
REC AFM
R407 8.2k
R404 2.2k
R403 2.2k
W401 (WHT)
SP/LP
REC AFM RF
AUDIO 5V
PB VI RF
AUDIO 5V GND
RF SWP
N.C
N.C
TO VI-46 BOARD W204 (See Page 143)
FL401
BPF
R401 1k
R402 1k
C402 0.01
C401 0.0068
MIC UNIT
(GRY)
(WHT)
CN402 (WHT)
MONO MIC GND
MONO MIC IN
L401 47µH
R406 47k
R428 1.2k
R450 10k
C425 0.001
R427 6.8k
R424 5.6k
IC401
µPC4572G2
MIC AMP
IC401 (1/2)
C403 1 50V
R422 100
R420 47k
CN403 (WHT)
MIC JACK OUT
MIC JACK IN
GND
MIC IN SW
TO HJ-4 BOARD W072 (See Page 175)
D401
C426 0.22
D401 RD12EB2
R423 33k
R426 4.7k
R425 56k
C424 0.22
C423 0.001
C428 22 6.3V
R421 68k
C420 0.01
C421 2.2 35V
IC401
µPC4572G2
MIC POWER
C422 0.01
C413 100 6.3V



ꟷCHEMATIC DIAGRAM


OARD
no mark:REC/PB mode
( ):REC mode
< >:PB mode
HIC401
SBX-1505-01
FM MOD/DEMOD
NOISE REDUCTION
(See page 207)
① TP 2
② I REF
③ V REF
④ IN 1
⑤ GND
⑥ IN 2
⑦ VG
⑧ IN 3
⑨ INPUT SELECT
⑩ SP/LP
⑪ PB RF IN
⑫ RF GND
⑬ MUTE TC
⑭ DOC LEVEL
⑮ LPF 1
⑯ LPF 2
㉜ MOA IN
㉛ HOLD OUT
㉚ NR CHECK
㉙ LINE OUT
㉘ GND
㉗ EP OUT
㉖ AGC TC
㉕ Vcc
㉔ REG 4.2V
㉓ GND
㉒ TP 1
㉑ REC AFM
⑳ LINE MUTE
⑲ REC MUTE
⑱ RF SWP
⑰ PB MODE
Q403 2SC1623 RF AMP
Q402 DTC144EK INVERTER
Q401 DTA144WK TIME CONSTANT SWITCH
C405 100 6.3V
C406 100 6.3V
C404 0.47 50V
C410 22 6.3V
C409 4.7 16V
R405 2.7k
C411 100 6.3V
C408 2.2 35V
RV401 4.7k
REC AFM
C407 100 6.3V
R407 8.2k
FL401 BPF
R401 1k
R402 1k
C402 0.01
C401 0.0068
R403 2.2k
R404 2.2k
W402 (WHT)
1 RF SWP GRY
2 AUDIO MUTE GRY
3 VA PB MODE GRY
4 CAM/LINE GRY
5 AFM OUT RED
6 AFM IN WHT
7 AFM GND —
(WHT)
TO PC-32 BOARD CN004
(See Page 178)
MS-11 BOARD
S001 PUSH TO NARRATE
CN401 (WHT)
2 GND GRY
1 AFM SEL RED
W051 (WHT)
GRY GND 2
RED AFM SEL 1
R410 10k
L401 47μH
R406 47k
R428 2.2k
C425 0.001
R427 6.8k
R424 5.6k
IC401 μPC4572G2 MIC AMP
IC401 (1/2)
C403 1 50V
R422 100
R420 47k
IC401 μPC4572G2 MIC POWER
D401
C426 0.22
D401 RD12EB2
R425 56k
R426 4.7k
C424 0.22
R423 33k
C423 0.001
C428 22 6.3V
R421 68k
C420 0.01
C421 2.2 35V
C422 0.01
C413 100 6.3V
C412 22 6.3V

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ☐ : panel disignation.
- ☐ : adjustment for repair.
- ━ : B + line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇛ indicates the I/O direction of B lines (+, −).

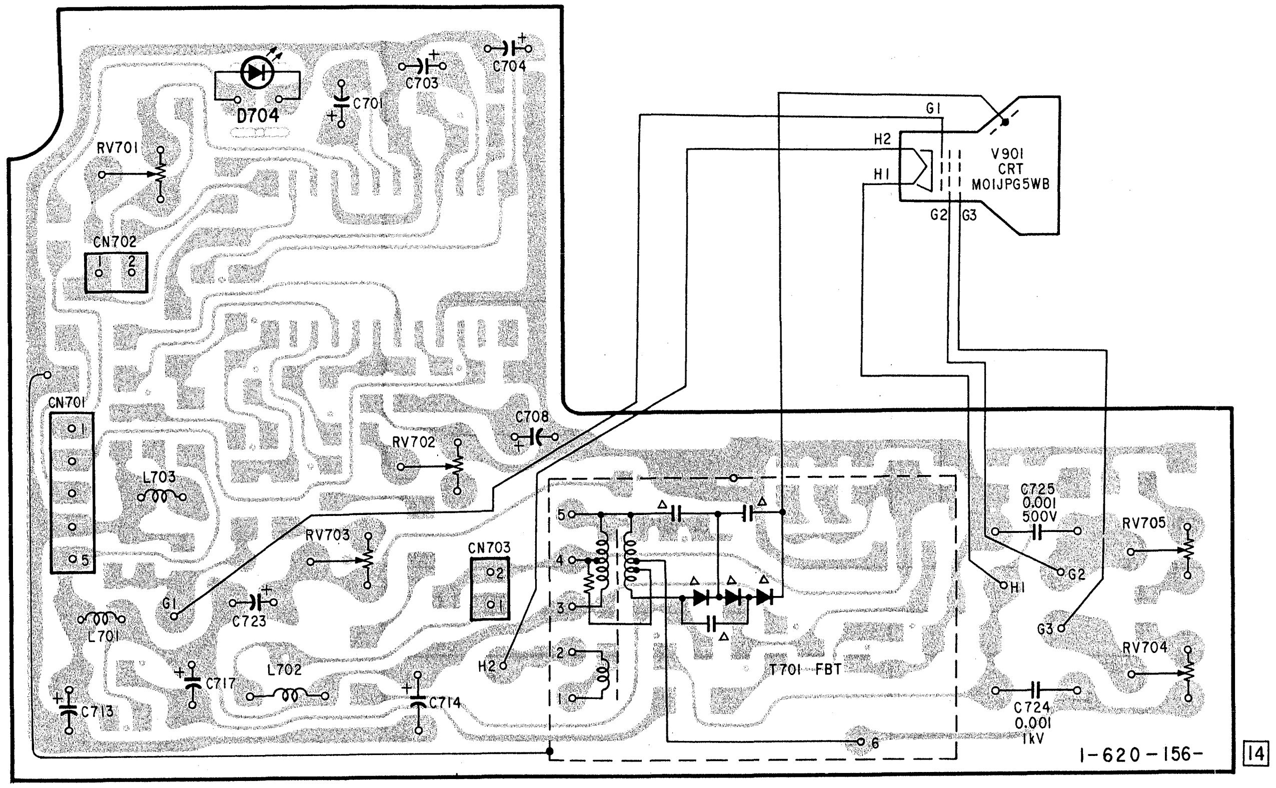
When indicating parts by reference number, please include the board name.

- **Signal path**
  ➡ :REC Y SIGNAL
  ⇨ :PB Y SIGNAL

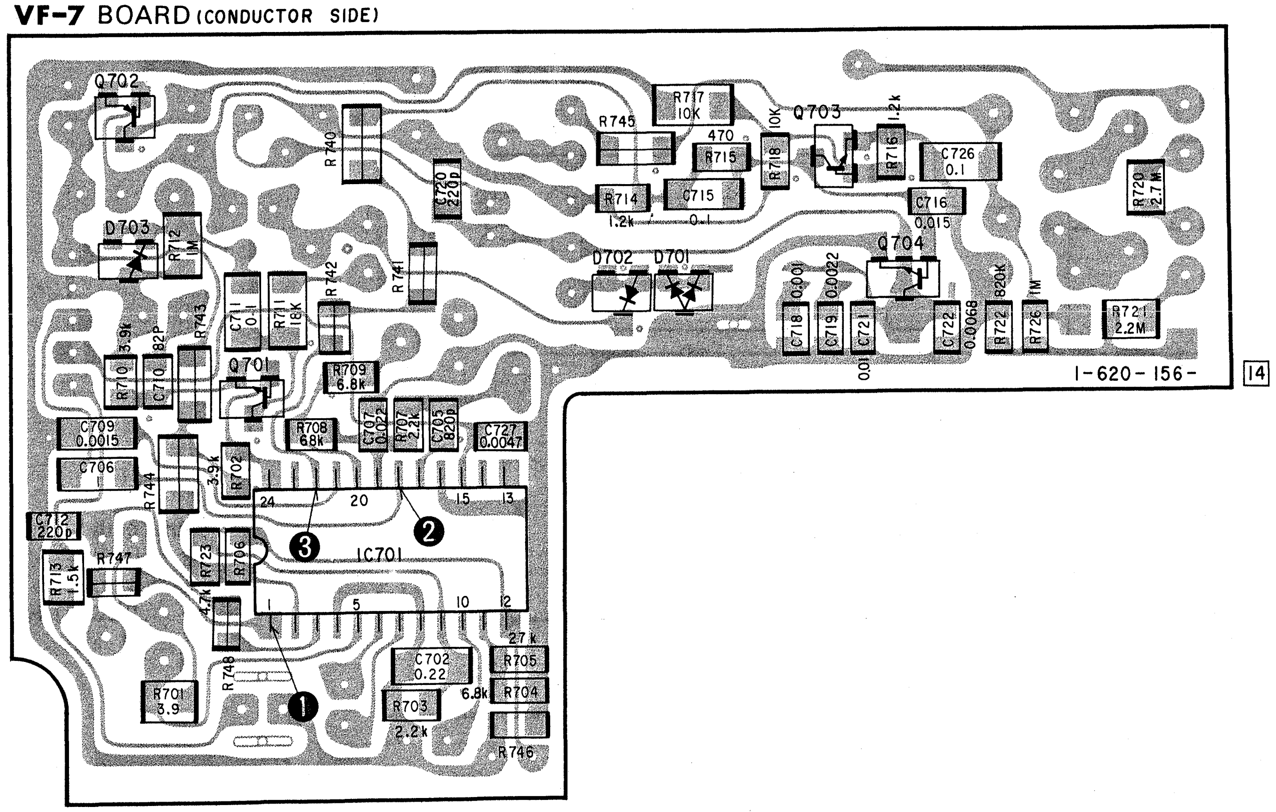
VF-7 (VIEW FINDER PROCESS) PRINTED WIRING BOARD

— Ref. No. VF-7 BOARD: 8000 series —

VF-7 BOARD (COMPONENT SIDE)

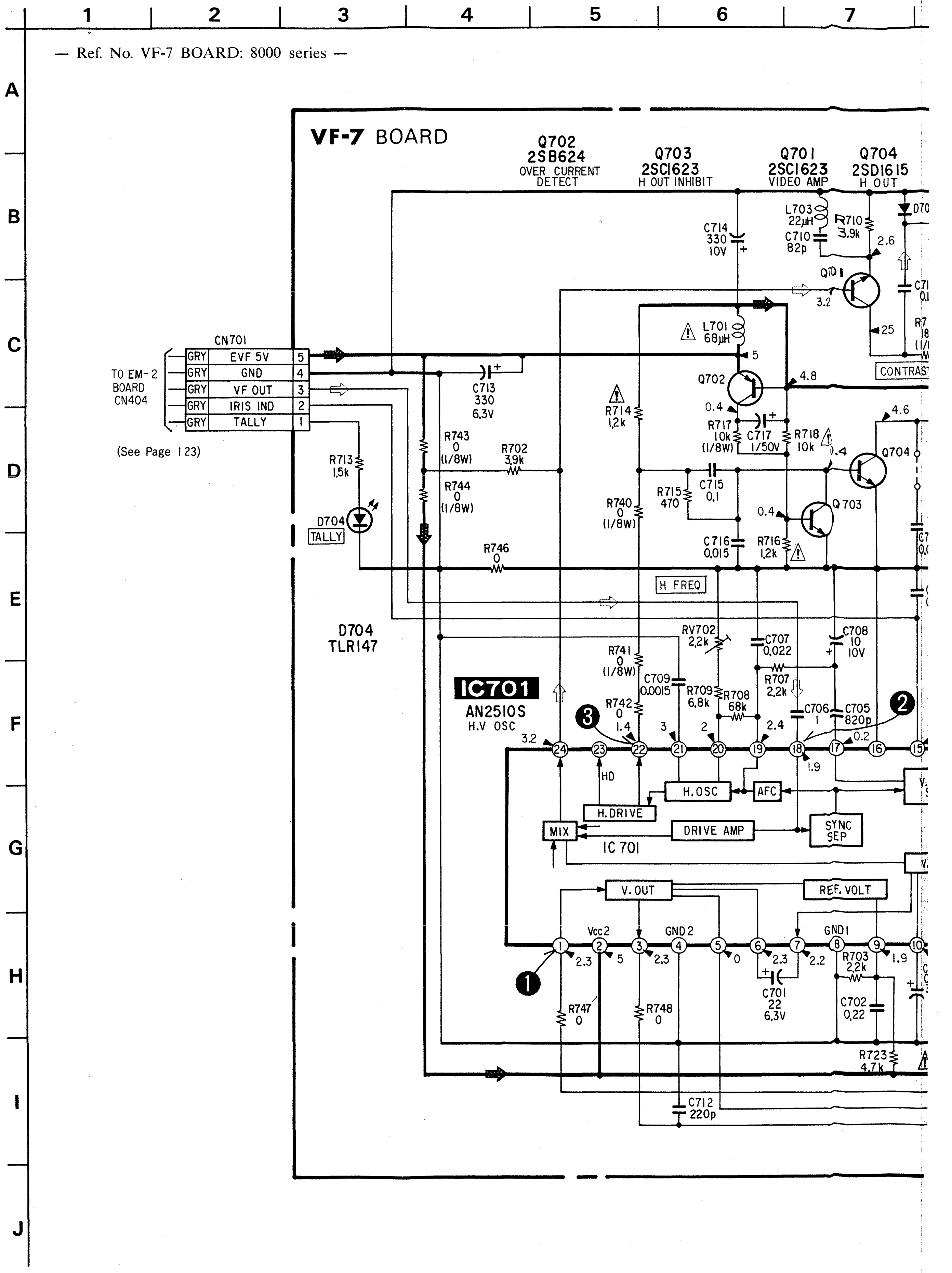

D704
C703
C704
C701
RV701
CN702
1
2
CN701
5
L703
RV702
C708
RV703
CN703
G1
C723
L701
L702
C717
C713
C714
H2
T701 FBT
6
G1
H2
H1
V901
CRT
M01JPG5WB
G2
G3
C725
0.001
500V
RV705
H1
G2
G3
RV704
C724
0.001
1kV
1-620-156-
14

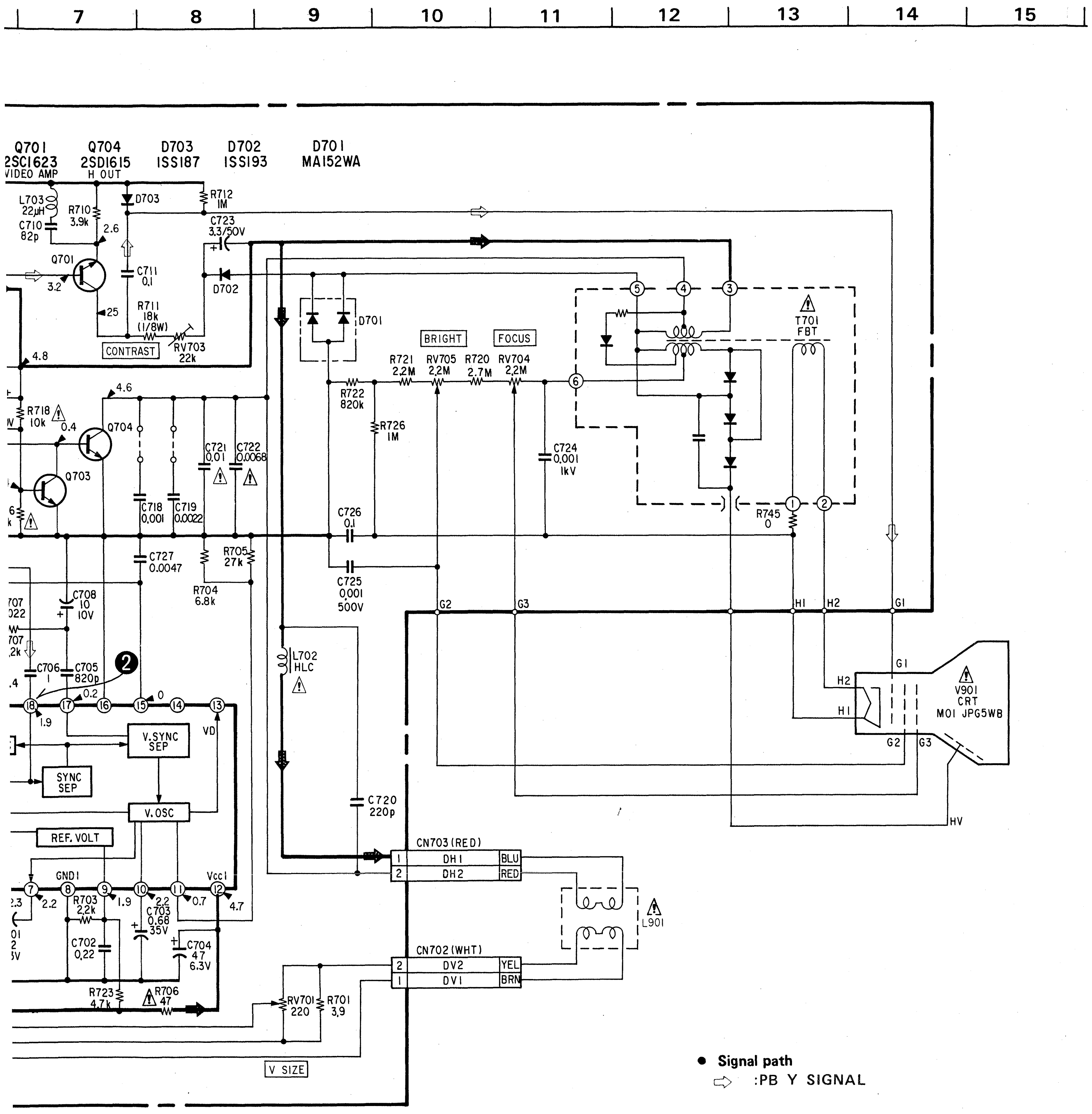
VF-7 BOARD (CONDUCTOR SIDE)


Q702
R745
R717
10k
R715
470
10K
Q703
1.2k
R716
C726
0.1
R740
C720
220p
R714
1.2k
C715
0.1
R718
C716
0.015
R720
2.7M
D703
R712
1M
R742
R741
D702
D701
Q704
0.001
0.0022
R743
3.9k
82P
C711
0.1
R711
18K
C718
C719
C721
0.01
C722
0.0068
820K
R722
R726
1M
R721
2.2M
R710
C710
Q701
R709
6.8k
1-620-156-
14
C709
0.0015
R708
68k
C707
0.022
R707
2.2k
C705
820p
C727
0.0047
C706
3.9k
R702
R744
24
20
15
13
C712
220p
R723
R706
3
2
IC701
R713
1.5k
R747
4.7k
1
5
10
12
27k
C702
0.22
R705
6.8k
R704
R701
3.9
R748
1
R703
2.2k
R746

VF-7 (VIEW FINDER PROCESS) SCHEMATIC DIAGRAM

— Ref. No. VF-7 BOARD: 8000 series —

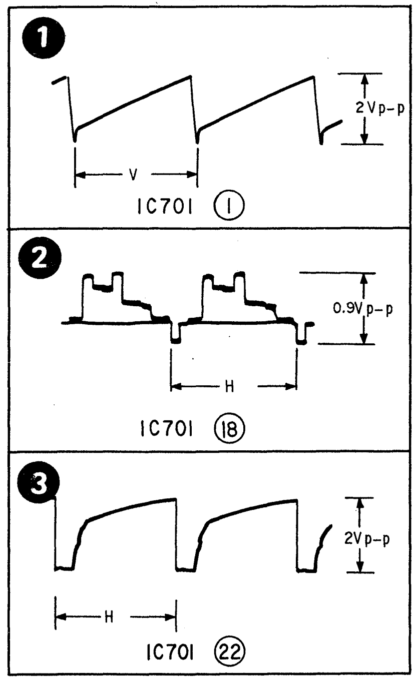

1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
VF-7 BOARD
Q702
2SB624
OVER CURRENT
DETECT
Q703
2SC1623
H OUT INHIBIT
Q701
2SC1623
VIDEO AMP
Q704
2SD1615
H OUT
L703
22μH
R710
3.9k
C710
82p
2.6
C714
330
10V
Q701
3.2
25
L701
68μH
5
CONTRAST
CN701
TO EM-2
BOARD
CN404
GRY EVF 5V 5
GRY GND 4
GRY VF OUT 3
GRY IRIS IND 2
GRY TALLY 1
(See Page 123)
C713
330
6.3V
R714
1.2k
Q702
4.8
0.4
R717
10k
(1/8W)
C717
1/50V
R718
10k
4.6
Q704
R713
1.5k
R743
0
(1/8W)
R702
3.9k
R744
0
(1/8W)
R715
470
C715
0.1
R740
0
(1/8W)
0.4
Q703
D704
TALLY
R746
0
C716
0.015
R716
1.2k
H FREQ
D704
TLR147
RV702
2.2k
C707
0.022
C708
10
10V
R741
0
(1/8W)
C709
0.0015
R709
6.8k
R708
68k
R707
2.2k
IC701
AN2510S
H.V OSC
R742
0
3
1.4
3
2
2.4
C706
1
C705
820p
2
0.2
3.2
1.9
24
23
22
21
20
19
18
17
16
15
HD
H.OSC
AFC
H.DRIVE
MIX
DRIVE AMP
SYNC
SEP
IC 701
V.OUT
REF. VOLT
Vcc 2
GND 2
GND 1
1
2
3
4
5
6
7
8
9
10
2.3
5
2.3
0
2.3
2.2
1.9
1
C701
22
6.3V
R703
2.2k
C702
0.22
R747
0
R748
0
R723
4.7k
C712
220p

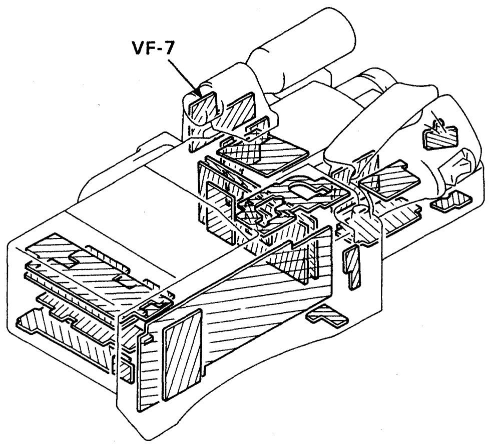

7
8
9
10
11
12
13
14
15
Q701 2SC1623 VIDEO AMP
Q704 2SD1615 H OUT
D703 1SS187
D702 1SS193
D701 MA152WA
L703 22µH
R710 3.9k
C710 82p
D703
R712 1M
C723 3.3/50V
C711 0.1
D702
R711 18k (1/8W)
CONTRAST
RV703 22k
D701
BRIGHT
FOCUS
R721 2.2M
RV705 2.2M
R720 2.7M
RV704 2.2M
R722 820k
R726 1M
C724 0.001 1kV
T701 FBT
R718 10k
Q704
Q703
C721 0.01
C722 0.0068
C718 0.001
C719 0.0022
C726 0.1
R745 0
C727 0.0047
R705 27k
R704 6.8k
C725 0.001 500V
C708 10 10V
C706 1
C705 820p
G2
G3
H1
H2
G1
L702 HLC
V901 CRT M01 JPG5WB
HV
V.SYNC SEP
SYNC SEP
V.OSC
REF. VOLT
GND1
Vcc1
VD
C720 220p
CN703 (RED)
DH1
DH2
BLU
RED
L901
CN702 (WHT)
DV2
DV1
YEL
BRN
R703 2.2k
C703 0.68 35V
C702 0.22
C704 47 6.3V
R723 4.7k
R706 47
RV701 220
R701 3.9
V SIZE
2.6
3.2
25
4.8
4.6
0.4
1.9
0.2
0
2.2
0.7
4.7

- **Signal path**

  ⇨ :PB Y SIGNAL

VF-7 BOARD





Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- The ● number is the reference number in the waveform diagram.

Note

Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

Regarding color indication of pattern

* Pattern being seen in the state from the surface side are indicated in gray pattern.

* Pattern being seen in the state of the rear surface side is indicated in green pattern.

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components. Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel disignation.
- ▭ : adjustment for repair.
- ▬ : B + line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).
- The ● number is the reference number in the waveform diagram.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

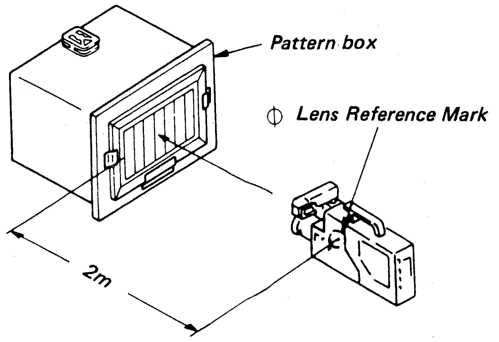
When indicating parts by reference number, please include the board name.

DT-62 (TIMING GENERATOR, REGISTER DRIVE) SCHEMATIC DIAGRAM

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- -w- : printing resistor.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) Voltage are DC between ground and measurement point.
  (The tester used is the digital multimeter DC10MΩ)
- ➾ indicates the I/O direction of B lines (+, −).

1. Connection


Pattern box
Lens Reference Mark
2m

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

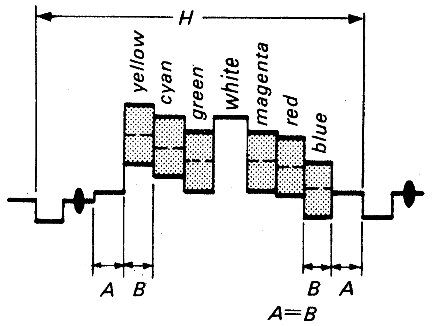

H
yellow
cyan
green
white
magenta
red
blue
A B
B A
A=B

Fig. a Camera output waveform of TP345 on VC-37 board.

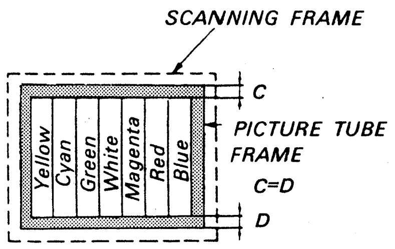
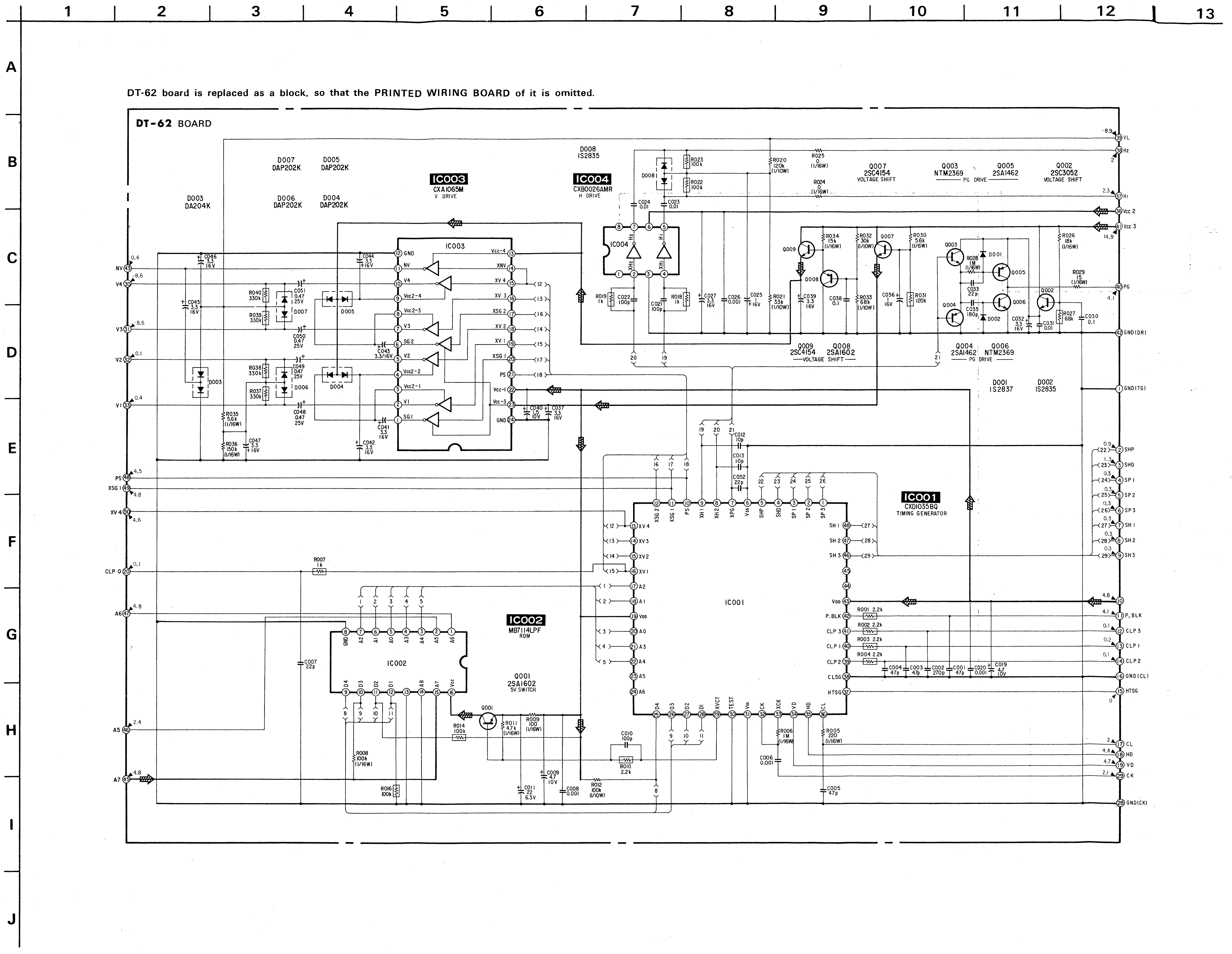

SCANNING FRAME
C
PICTURE TUBE FRAME
C=D
D
Yellow
Cyan
Green
White
Magenta
Red
Blue

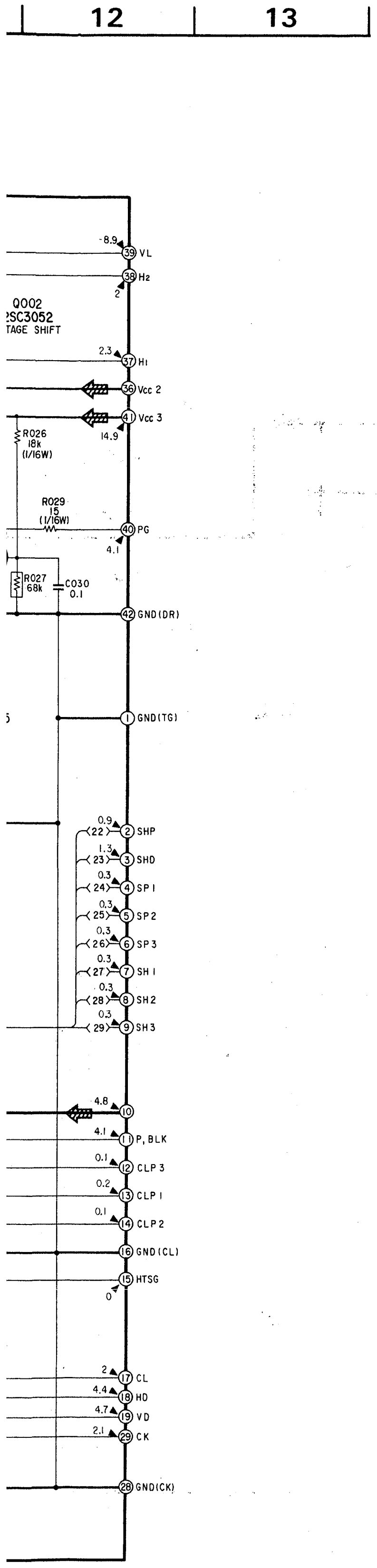
Fig. b Picture of TV monitor screen

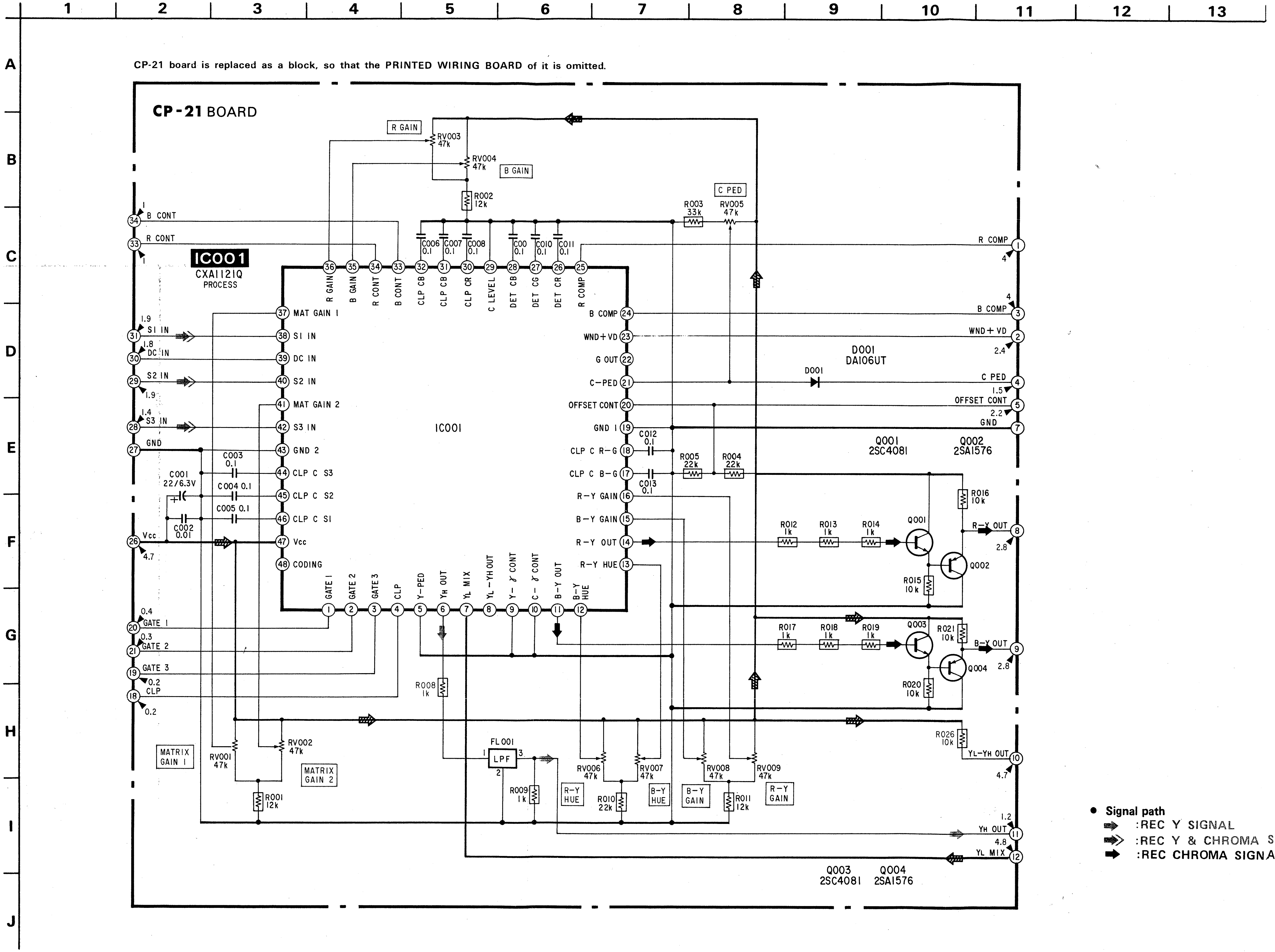

1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J
DT-62 BOARD
IC003 CXA1065M V DRIVE
IC004 CXB0026AMR H DRIVE
IC001 CXD1035BQ TIMING GENERATOR
IC002 MB7114LPF ROM
Q001 2SA1602 5V SWITCH
Q007 2SC4154 VOLTAGE SHIFT
Q003 NTM2369
Q005 2SA1462
PG DRIVE
Q002 2SC3052 VOLTAGE SHIFT
Q009 2SC4154
Q008 2SA1602
VOLTAGE SHIFT
Q004 2SA1462
Q006 NTM2369
PG DRIVE
D001 1S2837
D002 1S2835
D003 DA204K
D004 DAP202K
D005 DAP202K
D006 DAP202K
D007 DAP202K
D008 1S2835
VL
Hz
H1
Vcc 2
Vcc 3
PG
GND(DR)
GND(TG)
SHP
SHD
SP1
SP2
SP3
SH1
SH2
SH3
P.BLK
CLP3
CLP1
CLP2
GND(CL)
HTSG
CL
HD
VD
CK
GND(CK)
NV
V4
V3
V2
V1
PS
XSG1
XV4
CLP0
A6
A5
A7

DT-62 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.

CP-21 (CAMERA SIGNAL MATRIX) SCHEMATIC DIAGRAM

CP-21 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.


12
13
VL
Hz
Q002
2SC3052
STAGE SHIFT
Hi
Vcc 2
Vcc 3
R026
18k
(1/16W)
R029
15
(1/16W)
PG
R027
68k
C030
0.1
GND(DR)
GND(TG)
SHP
SHD
SP1
SP2
SP3
SH1
SH2
SH3
P, BLK
CLP3
CLP1
CLP2
GND(CL)
HTSG
CL
HD
VD
CK
GND(CK)


1
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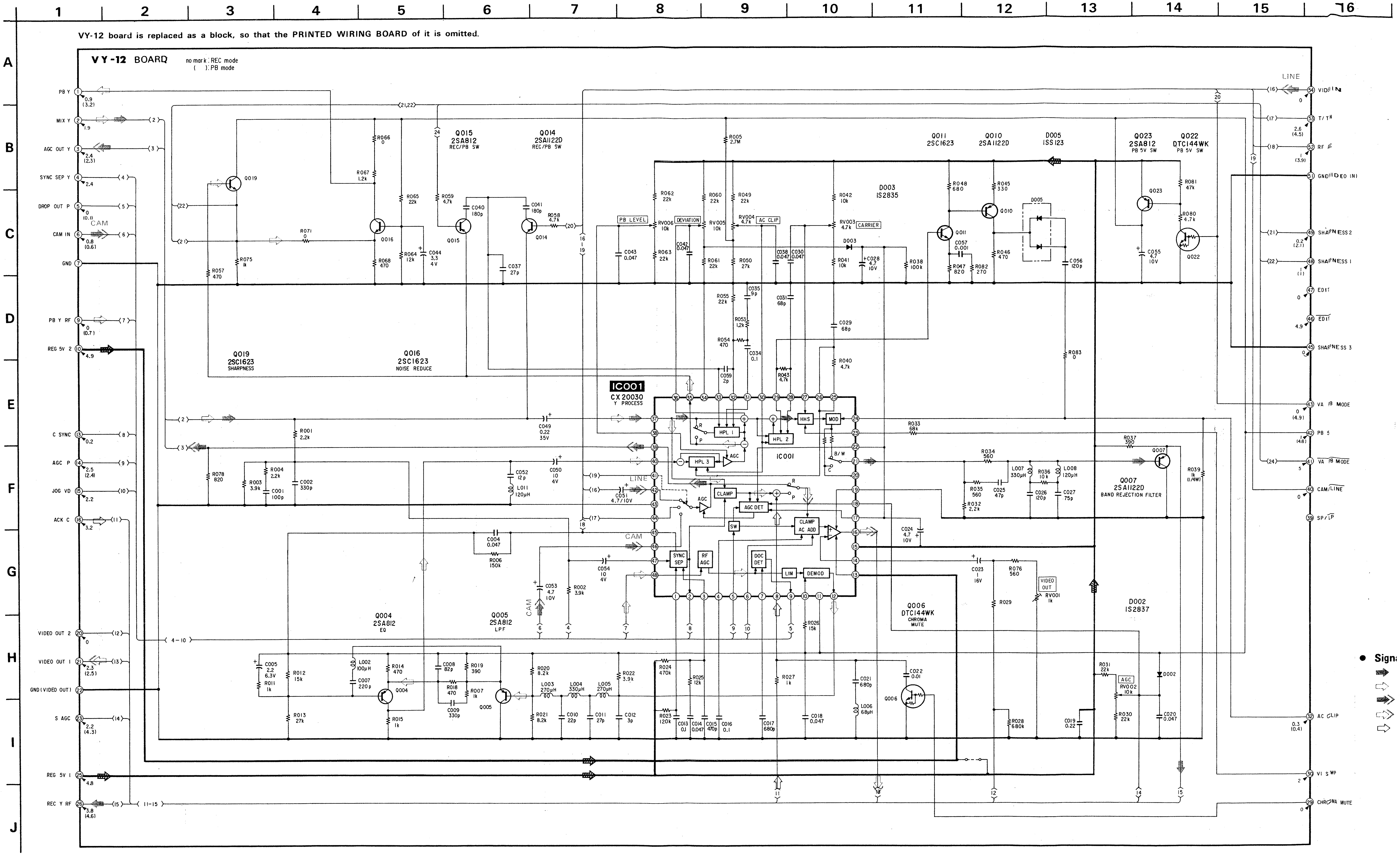
11
12
13
A
B
C
D
E
F
G
H
I
J
CP-21 BOARD
IC001
CXA1121Q
PROCESS
R GAIN
RV003
47k
RV004
47k
B GAIN
R002
12k
C PED
R003
33k
RV005
47k
B CONT
R CONT
C006 0.1
C007 0.1
C008 0.1
C00 0.1
C010 0.1
C011 0.1
R GAIN
B GAIN
R CONT
B CONT
CLP CB
CLP CB
CLP CR
C LEVEL
DET CB
DET CG
DET CR
R COMP
R COMP
B COMP
B COMP
MAT GAIN 1
S1 IN
DC IN
S2 IN
MAT GAIN 2
S3 IN
GND 2
CLP C S3
CLP C S2
CLP C S1
Vcc
CODING
WND+VD
G OUT
C-PED
OFFSET CONT
GND 1
CLP C R-G
CLP C B-G
R-Y GAIN
B-Y GAIN
R-Y OUT
R-Y HUE
D001
DA106UT
C PED
OFFSET CONT
GND
C012 0.1
C013 0.1
R005 22k
R004 22k
Q001
2SC4081
Q002
2SA1576
R016 10k
R012 1k
R013 1k
R014 1k
R-Y OUT
R015 10k
C001 22/6.3V
C002 0.01
C003 0.1
C004 0.1
C005 0.1
GATE 1
GATE 2
GATE 3
CLP
Y-PED
YH OUT
YL MIX
YL-YH OUT
Y-γ CONT
C-γ CONT
B-Y OUT
B-Y HUE
R017 1k
R018 1k
R019 1k
R021 10k
B-Y OUT
Q003
Q004
R020 10k
R008 1k
R026 10k
YL-YH OUT
FL001
LPF
R009 1k
RV001 47k
RV002 47k
MATRIX GAIN 1
MATRIX GAIN 2
R001 12k
RV006 47k
RV007 47k
R-Y HUE
R010 22k
B-Y HUE
RV008 47k
B-Y GAIN
R011 12k
RV009 47k
R-Y GAIN
YH OUT
YL MIX
Q003 2SC4081
Q004 2SA1576

- **Signal path**
  - ⇨ :REC Y SIGNAL
  - ⇛ :REC Y & CHROMA SIGNAL
  - ➡ :REC CHROMA SIGNAL

VY-12 (Y SIGNAL PROCESS) SCHEMATIC DIAGRAM

VY-12 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.


VY-12 BOARD
no mark : REC mode
( ) : PB mode
PB Y
MIX Y
AGC OUT Y
SYNC SEP Y
DROP OUT P
CAM IN
GND
PB Y RF
REG 5V 2
C SYNC
AGC P
JOG VD
ACK C
VIDEO OUT 2
VIDEO OUT 1
GND (VIDEO OUT)
S AGC
REG 5V 1
REC Y RF
VIDEO IN
T/TM
RF
GND (VIDEO IN)
SHARPNESS 2
SHARPNESS 1
EDIT
SHARPNESS 3
VA PB MODE
PB 5
CAM/LINE
SP/LP
AC CLIP
V1 SWP
CHROMA MUTE
LINE
CAM
Q019 2SC1623 SHARPNESS
Q016 2SC1623 NOISE REDUCE
Q015 2SA812 REC/PB SW
Q014 2SA1122D REC/PB SW
Q011 2SC1623
Q010 2SA1122D
D005 1SS123
Q023 2SA812 PB 5V SW
Q022 DTC144WK PB 5V SW
D003 1S2835
IC001 CX20030 Y PROCESS
Q007 2SA1122D BAND REJECTION FILTER
Q004 2SA812 EQ
Q005 2SA812 LPF
Q006 DTC144WK CHROMA MUTE
D002 1S2837
PB LEVEL
DEVIATION
AC CLIP
CARRIER
VIDEO OUT
AGC
HPL 1
HPL 2
HPL 3
HHS
MOD
B/W
CLAMP
AGC DET
SW
CLAMP AC ADD
SYNC SEP
RF AGC
DOC DET
LIM
DEMOD
● Signa
1
2
3
4
5
6
7
8
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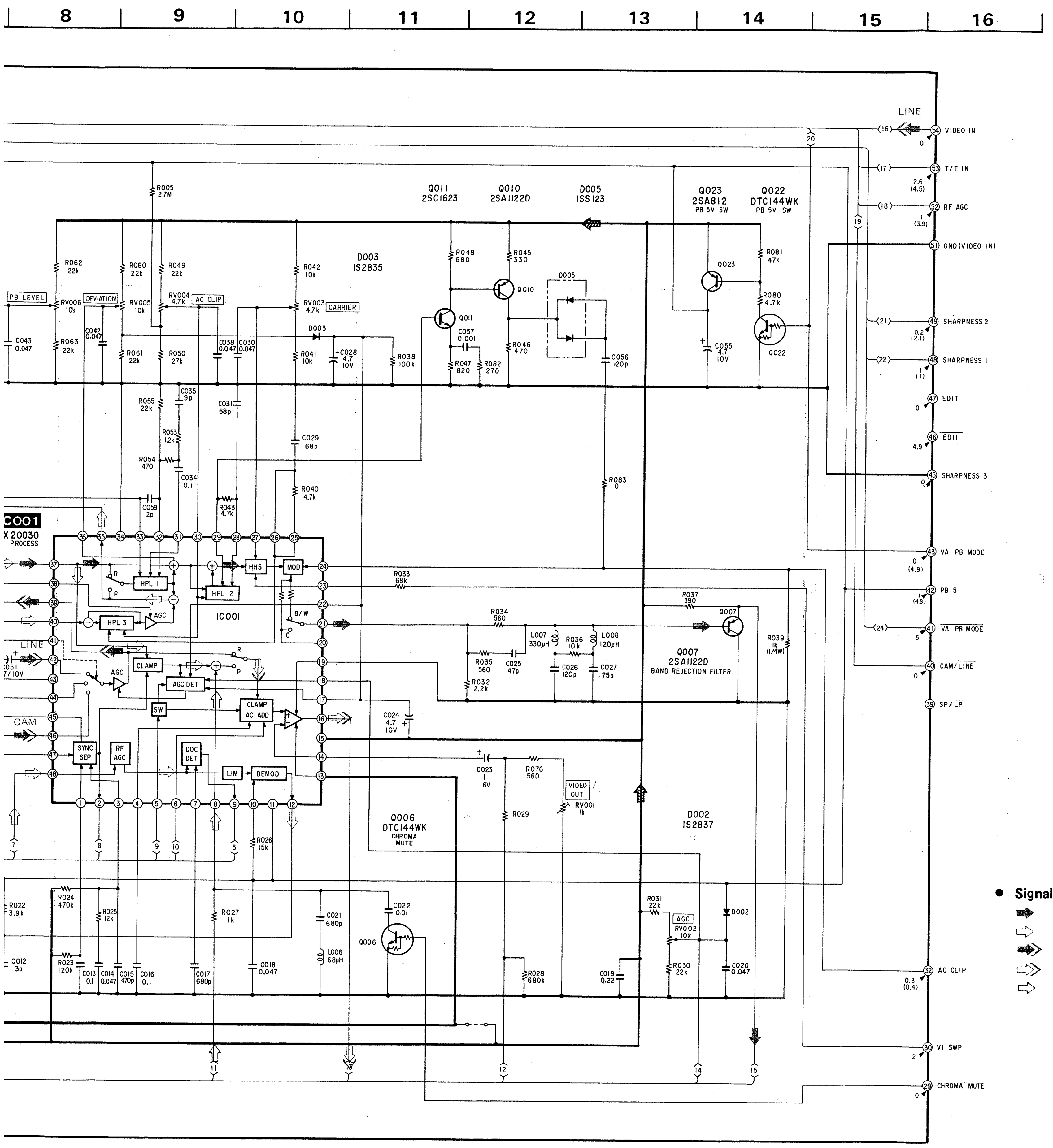
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J


8
9
10
11
12
13
14
15
16
LINE
VIDEO IN
T/T IN
RF AGC
GND (VIDEO IN)
SHARPNESS 2
SHARPNESS 1
EDIT
EDIT
SHARPNESS 3
VA PB MODE
PB 5
VA PB MODE
CAM/LINE
SP/LP
AC CLIP
VI SWP
CHROMA MUTE
Q011
2SC1623
Q010
2SA1122D
D005
1SS123
Q023
2SA812
PB 5V SW
Q022
DTC144WK
PB 5V SW
D003
1S2835
PB LEVEL
DEVIATION
AC CLIP
CARRIER
IC001
X20030
PROCESS
HPL 1
HPL 2
HPL 3
HHS
MOD
AGC
CLAMP
AGC DET
SW
CLAMP
AC ADD
SYNC SEP
RF AGC
DOC DET
LIM
DEMOD
B/W
LINE
CAM
Q007
2SA1122D
BAND REJECTION FILTER
Q006
DTC144WK
CHROMA MUTE
VIDEO OUT
RV001
1k
D002
1S2837
AGC
RV002
10k
D002

Note (Schematic Diagram)

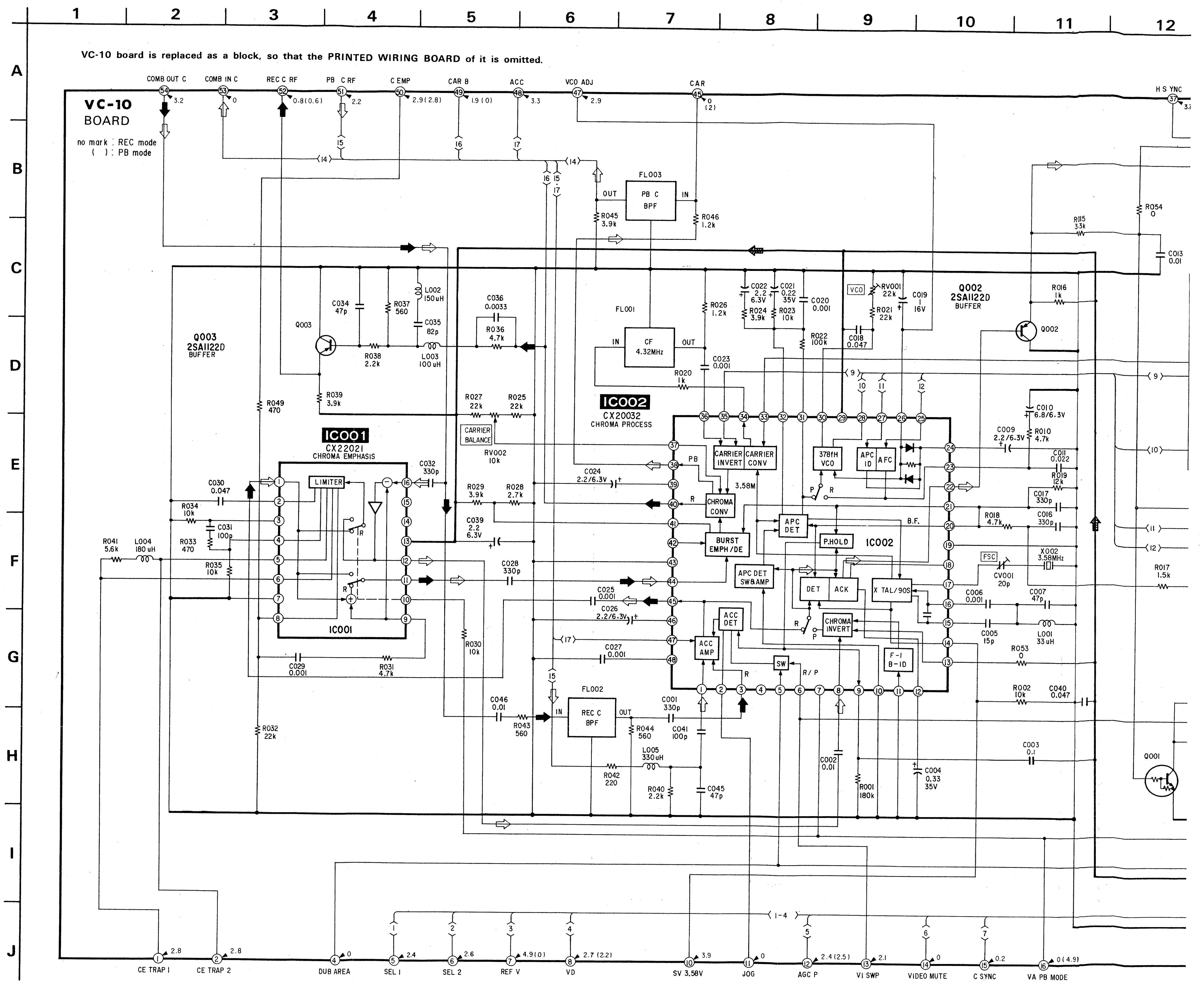
- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ━ : B+ line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ➡ indicates the I/O direction of B lines (+, −).

- **Signal path**
  ➡ :REC Y SIGNAL
  ⇨ :PB Y SIGNAL
  ➡ :REC Y & CHROMA SIGNAL
  ⇨ :PB Y & CHROMA SIGNAL
  ⇨ :PB CHROMA SIGNAL

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).

VC-10 (CHROMA SIGNAL PROCESS) SCHEMATIC DIAGRAM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11
12
A
B
C
D
E
F
G
H
I
J
VC-10
BOARD
no mark : REC mode
( ) : PB mode
COMB OUT C
COMB IN C
REC C RF
PB C RF
C EMP
CAR B
ACC
VCO ADJ
CAR
H SYNC
FL003
PB C
BPF
FL001
CF
4.32MHz
IC001
CX22021
CHROMA EMPHASIS
LIMITER
IC002
CX20032
CHROMA PROCESS
CARRIER INVERT
CARRIER CONV
378fH VCO
APC ID
AFC
CHROMA CONV
BURST EMPH/DE
APC DET
P.HOLD
APC DET SW&AMP
DET
ACK
X TAL/90S
ACC DET
ACC AMP
CHROMA INVERT
SW
F-I B-ID
FL002
REC C BPF
Q001
Q002
2SA1122D
BUFFER
Q003
2SA1122D
BUFFER
X002
3.58MHz
CVO01
RV001
RV002
CARRIER BALANCE
CE TRAP 1
CE TRAP 2
DUB AREA
SEL 1
SEL 2
REF V
VD
SV 3.58V
JOG
AGC P
V1 SWP
VIDEO MUTE
C SYNC
VA PB MODE

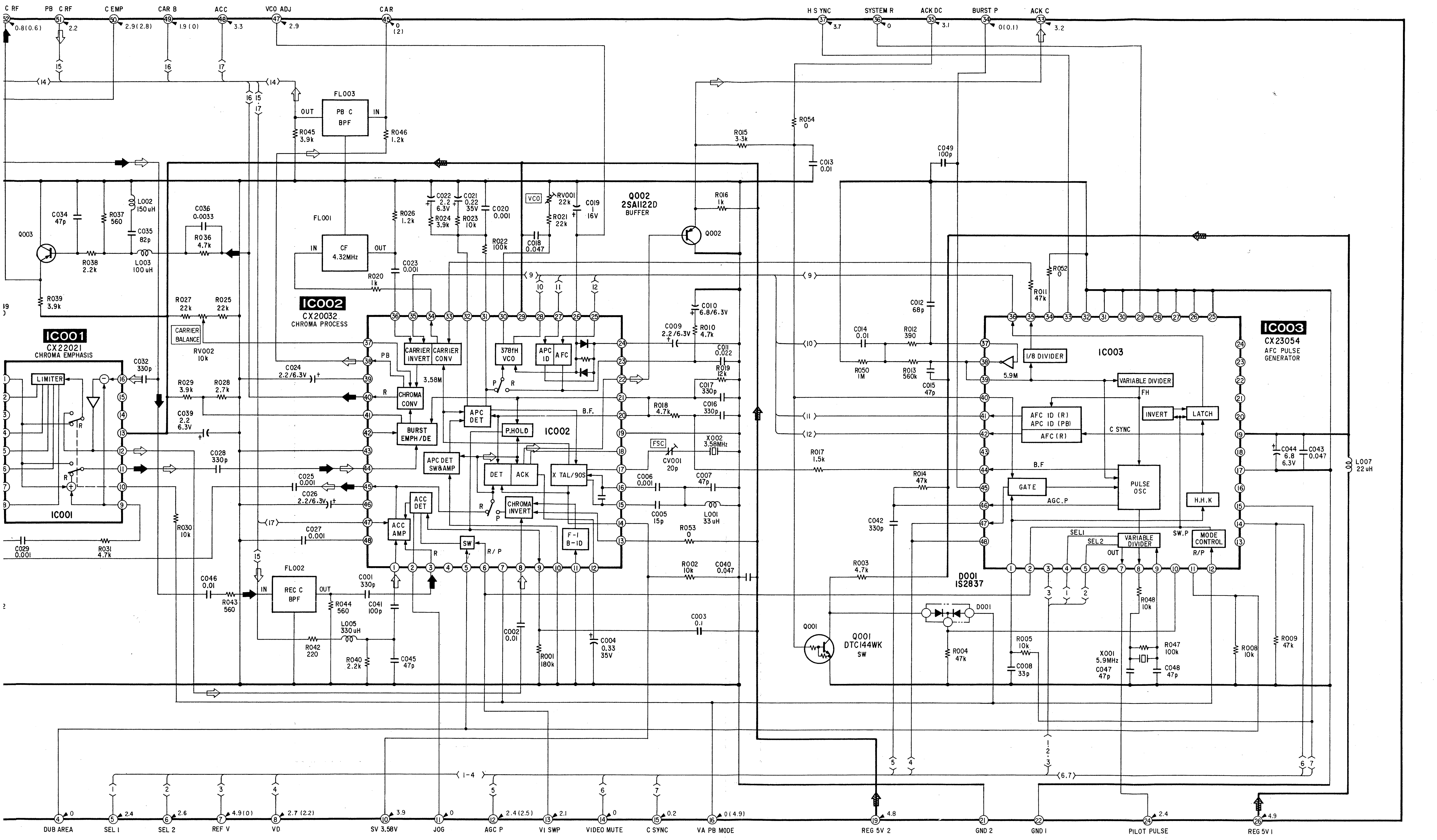
VC-10 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.

- **Signal path**
  - ➡ :REC CHROMA SIGNAL
  - ⇨ :PB CHROMA SIGNAL

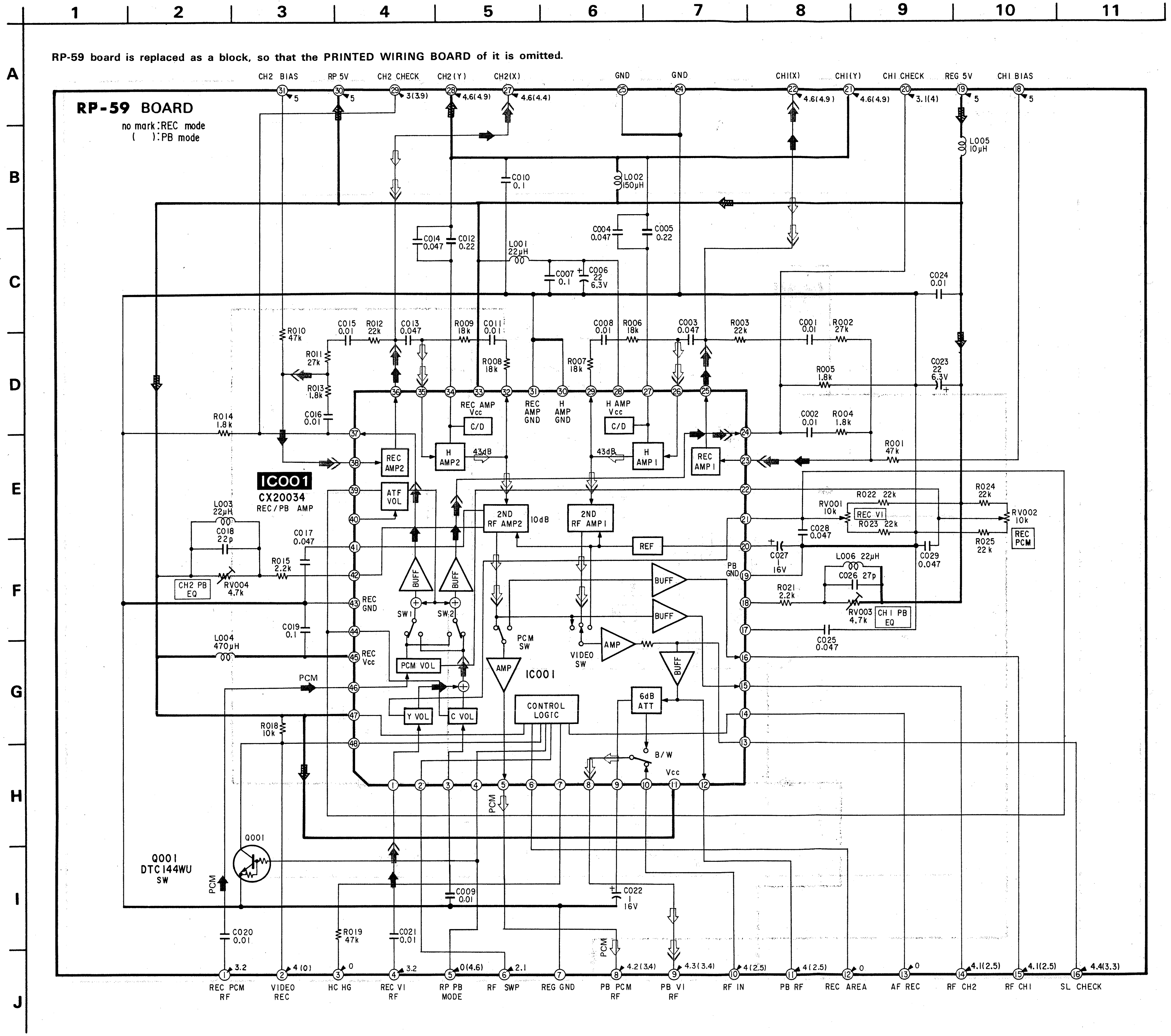
SCHEMATIC DIAGRAM

4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

that the PRINTED WIRING BOARD of it is omitted.


C RF
PB C RF
C EMP
CAR B
ACC
VCO ADJ
CAR
H S YNC
SYSTEM R
ACK DC
BURST P
ACK C
0.8(0.6)
2.2
2.9(2.8)
1.9(0)
3.3
2.9
0 (2)
3.7
0
3.1
0(0.1)
3.2
FL003
PB C BPF
OUT
IN
R045 3.9k
R046 1.2k
R054 0
R015 3.3k
C013 0.01
C049 100p
C034 47p
R037 560
L002 150uH
C035 82p
C036 0.0033
R036 4.7k
Q003
R038 2.2k
L003 100uH
R039 3.9k
FL001
CF 4.32MHz
R026 1.2k
C022 2.2 6.3V
C021 0.22 35V
C020 0.001
R024 3.9k
R023 10k
VCO
RV001 22k
R021 22k
C019 1 16V
R022 100k
C018 0.047
C023 0.001
R020 1k
Q002 2SA1122D BUFFER
R016 1k
Q002
R027 22k
R025 22k
CARRIER BALANCE
RV002 10k
IC002
CX20032
CHROMA PROCESS
IC001
CX22021
CHROMA EMPHASIS
C032 330p
LIMITER
C024 2.2/6.3V
PB
R
3.58M
CARRIER INVERT
CARRIER CONV
378fH VCO
APC ID
AFC
CHROMA CONV
BURST EMPH/DE
APC DET
P.HOLD
IC002
B.F.
APC DET SW&AMP
DET
ACK
X TAL/90S
CHROMA INVERT
ACC DET
ACC AMP
SW
R/P
F-I B-ID
R029 3.9k
R028 2.7k
C039 2.2 6.3V
C028 330p
C025 0.001
C026 2.2/6.3V
C027 0.001
R030 10k
IC001
C029 0.001
R031 4.7k
C010 6.8/6.3V
C009 2.2/6.3V
R010 4.7k
C011 0.022
R019 12k
C017 330p
R018 4.7k
C016 330p
FSC
CV001 20p
X002 3.58MHz
C006 0.001
C007 47p
C005 15p
L001 33uH
R053 0
R002 10k
C040 0.047
C046 0.01
R043 560
FL002
REC C BPF
R044 560
C001 330p
C041 100p
L005 330uH
R042 220
R040 2.2k
C045 47p
C002 0.01
R001 180k
C004 0.33 35V
C003 0.1
C012 68p
C014 0.01
R012 390
R050 1M
R013 560k
C015 47p
R011 47k
R052 0
IC003
CX23054
AFC PULSE GENERATOR
1/8 DIVIDER
5.9M
VARIABLE DIVIDER
FH
INVERT
LATCH
AFC ID (R)
APC ID (PB)
AFC (R)
C SYNC
R017 1.5k
R014 47k
B.F
GATE
PULSE OSC
AGC.P
H.H.K
C042 330p
SEL1
SEL2
VARIABLE DIVIDER
OUT
SW.P
MODE CONTROL
R/P
C044 6.8 6.3V
C043 0.047
L007 22uH
R003 4.7k
D001 1S2837
D001
Q001
Q001 DTC144WK SW
R004 47k
R005 10k
C008 33p
X001 5.9MHz
C047 47p
R047 100k
C048 47p
R048 10k
R008 10k
R009 47k
(1-4)
(6.7)
DUB AREA
SEL 1
SEL 2
REF V
VD
SV 3.58V
JOG
AGC P
V1 SWP
VIDEO MUTE
C SYNC
VA PB MODE
REG 5V 2
GND 2
GND 1
PILOT PULSE
REG 5V 1
2.4
2.6
4.9(0)
2.7 (2.2)
3.9
2.4(2.5)
2.1
0.2
0(4.9)
4.8
2.4
4.9

RP-59 (VIDEO, AUDIO SIGNAL REC/PB PROCESS) SCHEMATIC DIAGRAM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11
A
B
C
D
E
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G
H
I
J
RP-59 BOARD
no mark:REC mode
( ):PB mode
CH2 BIAS
RP 5V
CH2 CHECK
CH2(Y)
CH2(X)
GND
GND
CH1(X)
CH1(Y)
CH1 CHECK
REG 5V
CH1 BIAS
5
5
3(3.9)
4.6(4.9)
4.6(4.4)
4.6(4.9)
4.6(4.9)
3.1(4)
5
5
L005 10μH
C010 0.1
L002 150μH
C014 0.047
C012 0.22
C004 0.047
C005 0.22
L001 22μH
C007 0.1
C006 22 6.3V
C024 0.01
R010 47k
R011 27k
R013 1.8k
C016 0.01
C015 0.01
R012 22k
C013 0.047
R009 18k
C011 0.01
R008 18k
C008 0.01
R006 18k
R007 18k
C003 0.047
R003 22k
C001 0.01
R002 27k
R005 1.8k
C023 22 6.3V
C002 0.01
R004 1.8k
R001 47k
R014 1.8k
REC AMP Vcc
C/D
REC AMP GND
H AMP GND
H AMP Vcc
C/D
REC AMP2
H AMP2
43dB
43dB
H AMP1
REC AMP1
IC001
CX20034
REC/PB AMP
ATF VOL
2ND RF AMP2
10dB
2ND RF AMP1
REF
L003 22μH
C018 22p
C017 0.047
R015 2.2k
CH2 PB EQ
RV004 4.7k
BUFF
BUFF
SW1
SW2
REC GND
C019 0.1
L004 470μH
REC Vcc
PCM VOL
PCM
PCM SW
AMP
IC001
VIDEO SW
AMP
BUFF
BUFF
BUFF
6dB ATT
Y VOL
C VOL
CONTROL LOGIC
B/W
Vcc
R018 10k
R022 22k
RV001 10k
REC V1
R023 22k
R024 22k
RV002 10k
R025 22k
REC PCM
C028 0.047
C027 1 16V
L006 22μH
C026 27p
C029 0.047
PB GND
R021 2.2k
RV003 4.7k
CH1 PB EQ
C025 0.047
PCM
Q001
Q001
DTC144WU
SW
PCM
C009 0.01
C022 1 16V
C020 0.01
R019 47k
C021 0.01
PCM
3.2
4(0)
0
3.2
0(4.6)
2.1
4.2(3.4)
4.3(3.4)
4(2.5)
4(2.5)
0
0
4.1(2.5)
4.1(2.5)
4.4(3.3)
REC PCM RF
VIDEO REC
HC HG
REC V1 RF
RP PB MODE
RF SWP
REG GND
PB PCM RF
PB V1 RF
RF IN
PB RF
REC AREA
AF REC
RF CH2
RF CH1
SL CHECK

RP-59 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components. Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇨ indicates the I/O direction of B lines (+, −).

- **Signal path**
  - ⇨ :REC Y & CHROMA SIGNAL
  - ⇨ :PB Y & CHROMA SIGNAL
  - ➡ :REC AUDIO SIGNAL
  - ⇨ :PB AUDIO SIGNAL

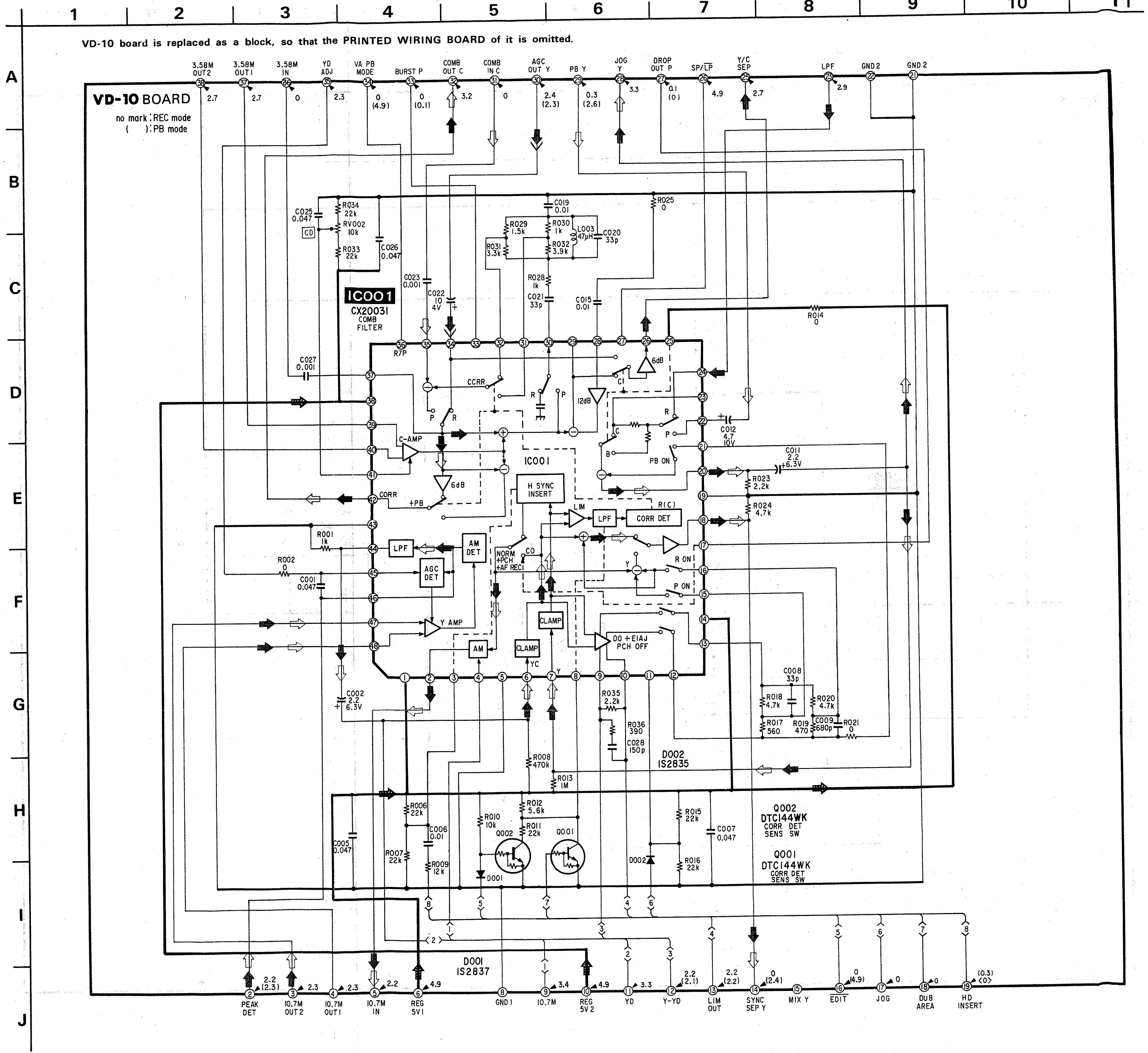
Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ☐ : panel designation.
- ☐ : adjustment designation.
- ▬ : B+ line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇛ indicates the I/O direction of B lines (+, −).

- **Signal path**
  - ➡ :REC Y SIGNAL
  - ⇨ :PB Y SIGNAL
  - ➡ :REC CHROMA SIGNAL
  - ⇨ :PB CHROMA SIGNAL
  - ⇛ :REC Y & CHROMA SIGNAL

VD-10 (COMB FILTER) SCHEMATIC DIAGRAM

VD-10 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.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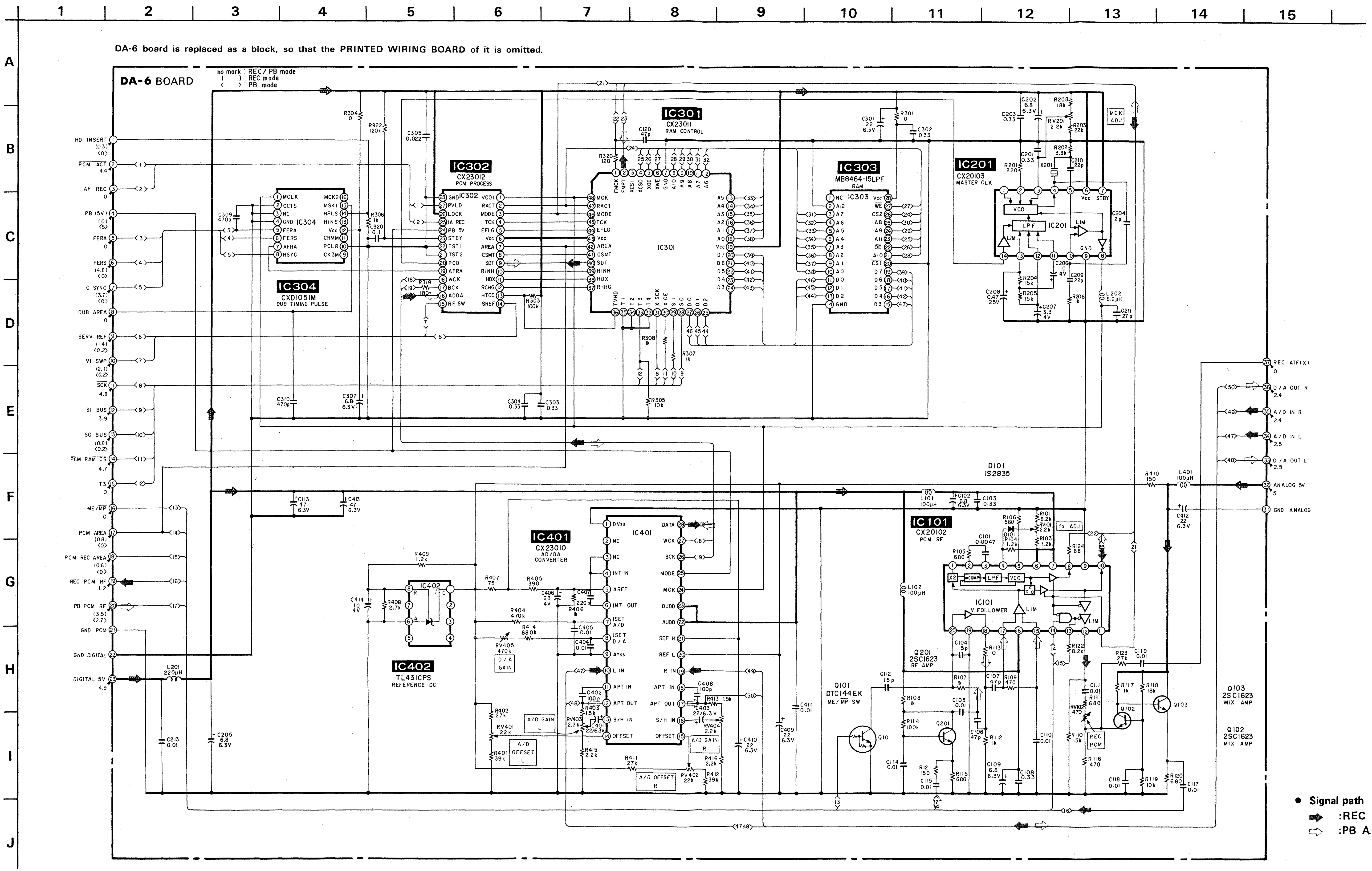
10
11
A
B
C
D
E
F
G
H
I
J
VD-10 BOARD
no mark : REC mode
( ) : PB mode
3.58M OUT2
3.58M OUT1
3.58M IN
YD ADJ
VA PB MODE
BURST P
COMB OUT C
COMB IN C
AGC OUT Y
PB Y
JOG Y
DROP OUT P
SP/LP
Y/C SEP
LPF
GND 2
GND 2
IC001
CX20031
COMB FILTER
R7P
CCRR
C-AMP
6dB
12dB
CORR
+PB
H SYNC INSERT
LIM
LPF
CORR DET
R(C)
PB ON
R ON
P ON
AM DET
AGC DET
LPF
NORM +PCH +AF REC
CO
Y AMP
AM
CLAMP
CLAMP
YC
DO + EIAJ PCH OFF
C025 0.047
R034 22k
RV002 10k
CD
R033 22k
C026 0.047
C023 0.001
C022 10 4V
C019 0.01
R029 1.5k
R030 1k
L003 47μH
C020 33p
R031 3.3k
R032 3.9k
R028 1k
C021 33p
C015 0.01
R025 0
R014 0
C027 0.001
C012 4.7 10V
C011 2.2 6.3V
R023 2.2k
R024 4.7k
R001 1k
R002 0
C001 0.047
C002 2.2 6.3V
R035 2.2k
R036 390
C028 150p
R008 470k
R013 1M
C008 33p
R018 4.7k
R020 4.7k
R017 560
R019 470
C009 680p
R021 0
D002 1S2835
R006 22k
C006 0.01
C005 0.047
R007 22k
R009 12k
R010 10k
R012 5.6k
R011 22k
Q002
Q001
D001
R015 22k
C007 0.047
D002
R016 22k
Q002 DTC144WK CORR DET SENS SW
Q001 DTC144WK CORR DET SENS SW
D001 1S2837
PEAK DET
10.7M OUT2
10.7M OUT1
10.7M IN
REG 5V1
GND 1
10.7M
REG 5V 2
YD
Y-YD
LIM OUT
SYNC SEP Y
MIX Y
EDIT
JOG
DUB AREA
HD INSERT

DA-6 (PCM PROCESS) SCHEMATIC DIAGRAM

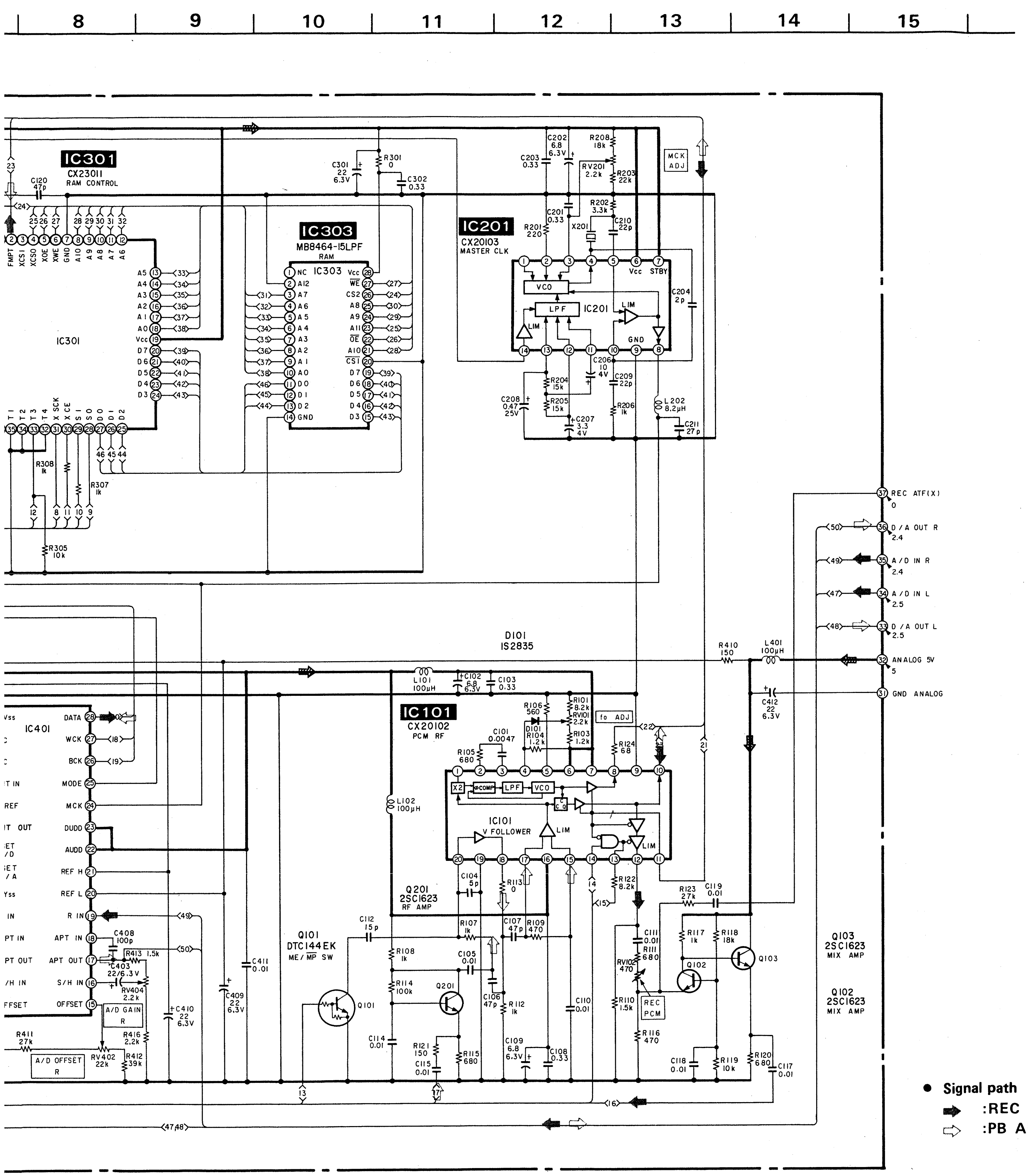
DA-6 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
DA-6 BOARD
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
IC301 CX23011 RAM CONTROL
IC302 CX23012 PCM PROCESS
IC303 MB8464-15LPF RAM
IC304 CXD1051M DUB TIMING PULSE
IC201 CX20103 MASTER CLK
IC401 CX23010 AD/DA CONVERTER
IC402 TL431CPS REFERENCE DC
IC101 CX20102 PCM RF
D101 IS2835
Q101 DTC144EK ME/MP SW
Q201 2SC1623 RF AMP
Q102 2SC1623 MIX AMP
Q103 2SC1623 MIX AMP
HD INSERT
PCM ACT
AF REC
PB (5V)
FERA
FERS
C SYNC
DUB AREA
SERV REF
VI SWP
SCK
SI BUS
SO BUS
PCM RAM CS
T3
ME/MP
PCM AREA
PCM REC AREA
REC PCM RF
PB PCM RF
GND PCM
GND DIGITAL
DIGITAL 5V
REC ATF(X)
D/A OUT R
A/D IN R
A/D IN L
D/A OUT L
ANALOG 5V
GND ANALOG
MCK ADJ
D/A GAIN
A/D GAIN L
A/D OFFSET L
A/D GAIN R
A/D OFFSET R
fo ADJ
REC PCM
V FOLLOWER
VCO
LPF
LIM

● Signal path

➡ :REC AUDIO SIGI

⇨ :PB AUDIO SIGN/


8
9
10
11
12
13
14
15
IC301
CX23011
RAM CONTROL
IC303
MB8464-15LPF
RAM
IC201
CX20103
MASTER CLK
VCO
LPF
LIM
GND
MCK ADJ
IC101
CX20102
PCM RF
fo ADJ
V FOLLOWER
IC401
D101
1S2835
L101
100μH
L401
100μH
Q101
DTC144EK
ME/MP SW
Q201
2SC1623
RF AMP
Q102
Q103
2SC1623
MIX AMP
Q102
2SC1623
MIX AMP
REC PCM
A/D GAIN R
A/D OFFSET R
REC ATF(X)
D/A OUT R
A/D IN R
A/D IN L
D/A OUT L
ANALOG 5V
GND ANALOG

Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, chip resistor are 1/10W unless otherwise noted.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ➾ indicates the I/O direction of B lines (+, −).

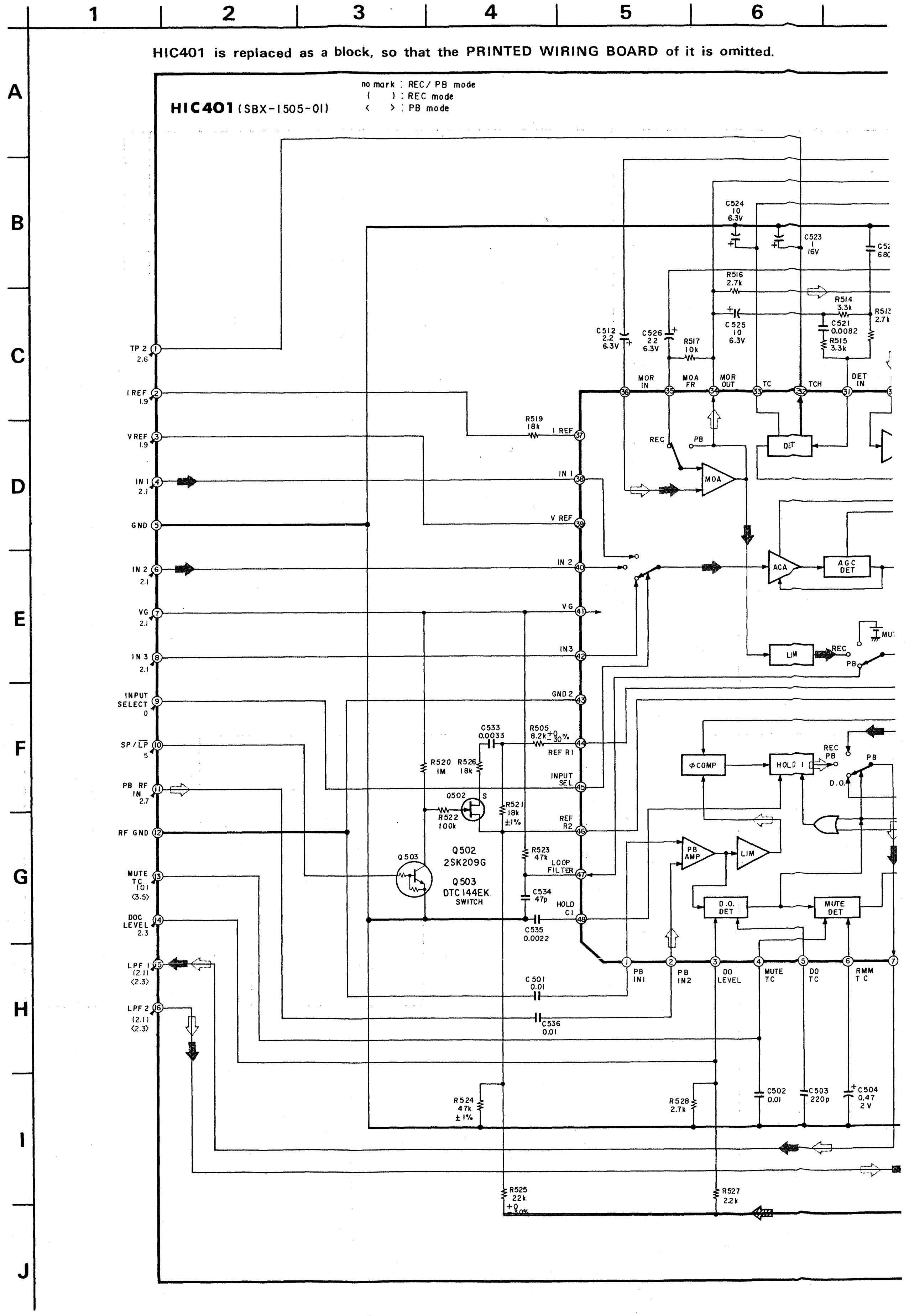
- **Signal path**
  ➡ :REC AUDIO SIGNAL
  ⇨ :PB AUDIO SIGNAL

Note (Schematic Diagram)

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms.
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▬ : B+ line.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)
- ⇛ indicates the I/O direction of B lines (+, −).

- **Signal path**
  - ➡ :REC AUDIO SIGNAL
  - ⇨ :PB AUDIO SIGNAL

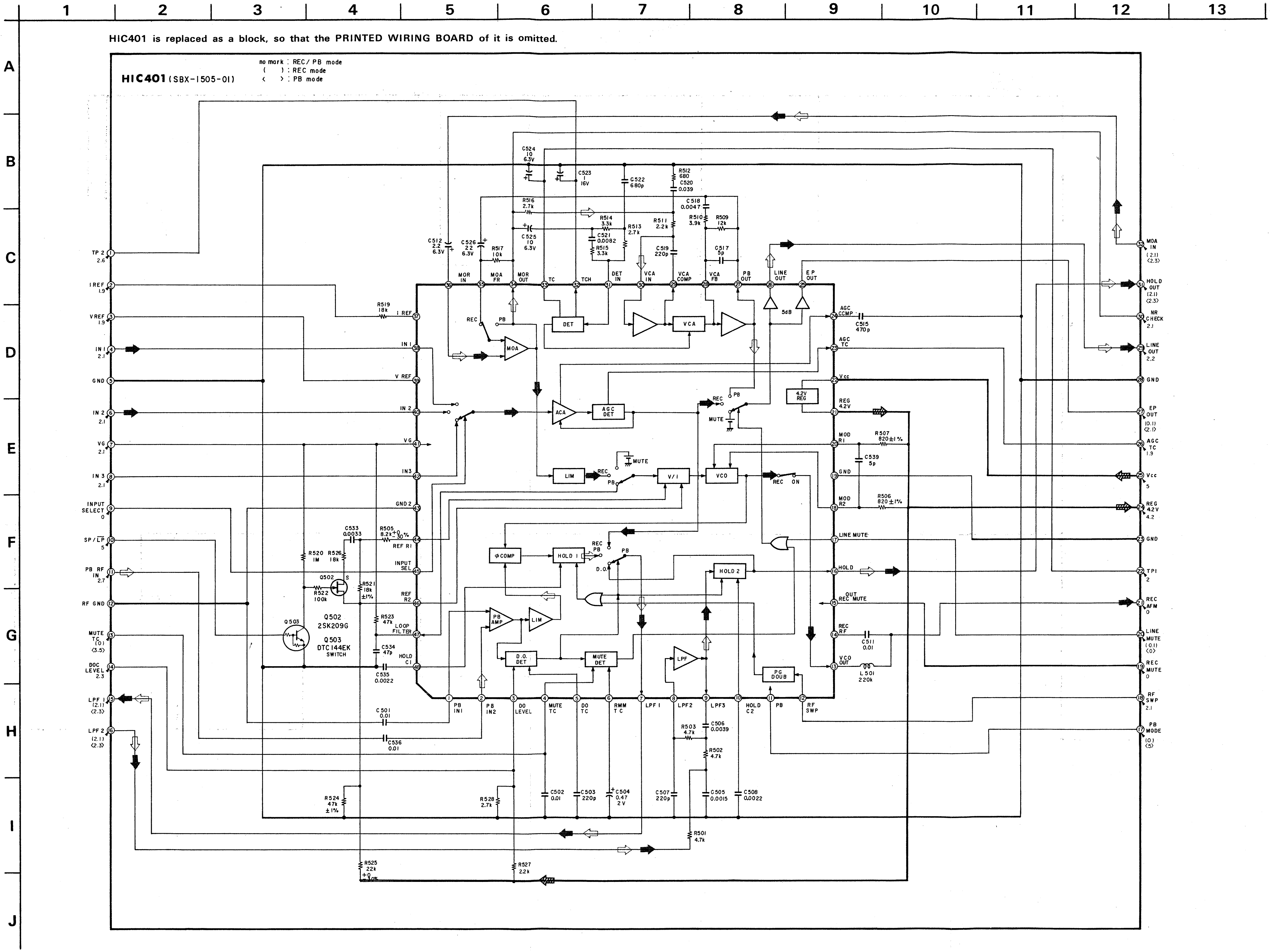
HIC401 SCHEMATIC DIAGRAM


HIC401 is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.

1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
HIC401 (SBX-1505-01)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
TP 2 2.6
I REF 1.9
V REF 1.9
IN 1 2.1
GND
IN 2 2.1
VG 2.1
IN 3 2.1
INPUT SELECT 0
SP/LP 5
PB RF IN 2.7
RF GND
MUTE TC (0) <3.5>
DOC LEVEL 2.3
LPF 1 (2.1) <2.3>
LPF 2 (2.1) <2.3>
R519 18k
I REF
IN 1
V REF
IN 2
VG
IN3
GND 2
REF R1
INPUT SEL
REF R2
LOOP FILTER
HOLD C1
C533 0.0033
R505 8.2k
R520 1M
R526 18k
Q502
R522 100k
R521 18k ±1%
Q503
Q502 2SK209G
Q503 DTC144EK SWITCH
R523 47k
C534 47p
C535 0.0022
C501 0.01
C536 0.01
R524 47k ±1%
R525 22k
R527 22k
R528 2.7k
C502 0.01
C503 220p
C504 0.47 2V
C524 10 6.3V
C523 1 16V
R516 2.7k
R514 3.3k
C521 0.0082
R515 3.3k
C525 10 6.3V
C512 2.2 6.3V
C526 22 6.3V
R517 10k
MOR IN
MOA FR
MOR OUT
TC
TCH
DET IN
REC
PB
DIT
MOA
ACA
AGC DET
LIM
MUTE
φCOMP
HOLD 1
D.O.
PB AMP
D.O. DET
MUTE DET
PB IN1
PB IN2
DO LEVEL
MUTE TC
DO TC
RMM TC

HIC401 SCHEMATIC DIAGRAM

HIC401 is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.


1
2
3
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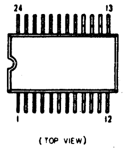
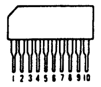
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
HIC401 (SBX-1505-01)
no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
TP 2 ① 2.6
I REF ② 1.9
V REF ③ 1.9
IN 1 ④ 2.1
GND ⑤
IN 2 ⑥ 2.1
VG ⑦ 2.1
IN 3 ⑧ 2.1
INPUT SELECT ⑨ 0
SP/LP ⑩ 5
PB RF IN ⑪ 2.7
RF GND ⑫
MUTE TC ⑬ (0) 〈3.5〉
DOC LEVEL ⑭ 2.3
LPF 1 ⑮ (2.1) 〈2.3〉
LPF 2 ⑯ (2.1) 〈2.3〉
MOA IN ㉜ (2.1) 〈2.3〉
HOLD OUT ㉛ (2.1) 〈2.3〉
NR CHECK ㉚ 2.1
LINE OUT ㉙ 2.2
GND ㉘
EP OUT ㉗ (0.1) 〈2.1〉
AGC TC ㉖ 1.9
Vcc ㉕ 5
REG 4.2V ㉔ 4.2
GND ㉓
TP1 ㉒ 2
REC AFM ㉑ 0
LINE MUTE ⑳ (0.1) 〈0〉
REC MUTE ⑲ 0
RF SWP ⑱ 2.1
PB MODE ⑰ (0) 〈5〉
MOR IN 36
MOA FR 35
MOR OUT 34
TC 33
TCH 32
DET IN 31
VCA IN 30
VCA COMP 29
VCA FB 28
PB OUT 27
LINE OUT 26
EP OUT 25
AGC CCMP 24
AGC TC 23
Vcc 22
REG 4.2V 21
MOD R1 20
GND 19
MOD R2 18
LINE MUTE 17
HOLD 16
OUT REC MUTE 15
REC RF 14
VCO OUT 13
I REF 37
IN 1 38
V REF 39
IN 2 40
VG 41
IN3 42
GND 2 43
REF R1 44
INPUT SEL 45
REF R2 46
LOOP FILTER 47
HOLD C1 48
PB IN1 1
PB IN2 2
DO LEVEL 3
MUTE TC 4
DO TC 5
RMM TC 6
LPF 1 7
LPF2 8
LPF3 9
HOLD C2 10
PB 11
RF SWP 12
C524 10 6.3V
C523 1 16V
C522 680p
R512 680
C520 0.039
C518 0.0047
R510 3.9k
R509 12k
R516 2.7k
R514 3.3k
R513 2.7k
R511 2.2k
C525 10 6.3V
C521 0.0082
R515 3.3k
C519 220p
C517 5p
C512 2.2 6.3V
C526 22 6.3V
R517 10k
R519 18k
REC
PB
MOA
DET
VCA
5dB
C515 470p
4.2V REG
ACA
AGC DET
MUTE
REC
PB
R507 820±1%
C539 5p
LIM
V/I
VCO
REC ON
R506 820±1%
C533 0.0033
R505 8.2k +0 −30 %
R520 1M
R526 18k
Q502
S
R522 100k
R521 18k ±1%
Q503
Q502 2SK209G
Q503 DTC144EK SWITCH
R523 47k
C534 47p
C535 0.0022
φ COMP
HOLD 1
REC PB
PB
D.O.
HOLD 2
PB AMP
LIM
D.O. DET
MUTE DET
LPF
PG DOUB
C511 0.01
L501 220k
C501 0.01
C536 0.01
R503 4.7k
C506 0.0039
R502 4.7k
R524 47k ±1%
R528 2.7k
C502 0.01
C503 220p
C504 0.47 2V
C507 220p
C505 0.0015
C508 0.0022
R501 4.7k
R525 22k +0 −30%
R527 2.2k

4-3. SEMICONDUCTORS

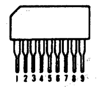
AN2510S
CX20114
CX20176
CXA1065M
MSM6411B-26GS-VK
μPD6105G-102
μPD6107G


24
13
1
12
(TOP VIEW)

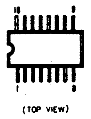
BA3312N


1 2 3 4 5 6 7 8 9 10

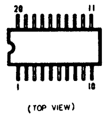
BA6138



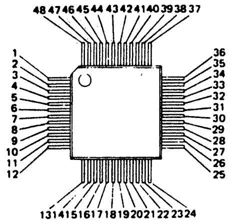
BA6303F
CX20115A
CX22021
CXA1157M
MC14543BF
MB7114LPF-SNY
TA7733F
TC4052BF
TC4053BF
μPD4053BG
μPD4538BG
μPD74HC02G
μPD74HC157G
μPD74HC174G


16
9
1
8
(TOP VIEW)

CX-7991
CX20102


20
11
1
10
(TOP VIEW)

CX20030
CX20031
CX20032
CX20034
CX23011
CX23054
CXA1070Q-Z
CXA1072Q-Z
CXA1121Q
CXD1035BQW
MB675121UPF


48 47 46 45 44 43 42 41 40 39 38 37
1
2
3
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5
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7
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9
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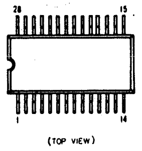
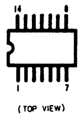
11
12
36
35
34
33
32
31
30
29
28
27
26
25
13 14 15 16 17 18 19 20 21 22 23 24

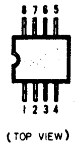
CX20035
CX20036
CX20099
CX23010
CX23012
CXA1042M
CXD1030M


28
15
1
14
(TOP VIEW)

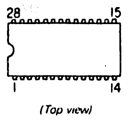
CX20095A
CX20103
TC4066BF
μPC324G2
μPC339G2
μPD4066BG
μPD4069UBG


14
8
1
7
(TOP VIEW)

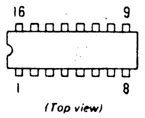
CXB0026AMR
M5201FP
MB3763PF
NJM2904M
NJM3404AM
NJM3414M
NJM4558M
NJM4560M
TL062ACPS
TL431CPS
μPC358G2
μPC393G2
μPC4250G2
μPC4572G2


8 7 6 5
1 2 3 4
(TOP VIEW)

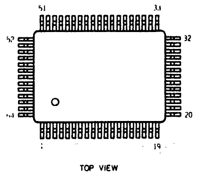
CXD1051M
MB8464-15LPF


28
15
1
14
(Top view)

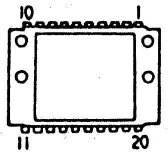
CXD1141M


16
9
1
8
(Top view)

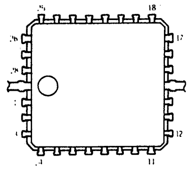
CXP5048H
μPD7502G-376-12
μPD7508G-769-00


51
33
52
32
20
19
TOP VIEW

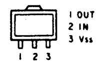
IU022AK-10A



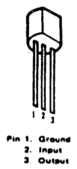
MC146805F2FPSC82533



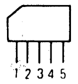
S-8054ALB-LM-S


1 OUT
2 IN
3 Vss
1 2 3

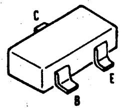
S-81250AG


1 2 3
Pin 1. Ground
2. Input
3. Output

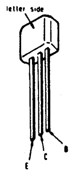
TA7060AP



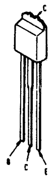
2SA1122
2SA1462
2SA1602
2SA812
2SB624
2SB624-BV4
2SC1623
2SC2757
2SC4154
2SD596
DTA114EK
DTA124EK
DTA144EK
DTA144TK
DTA144WK
DTC114EK
DTC124EK
DTC124XK
DTC143TK
DTC144EK
DTC144TK
DTC144WK
NTM2369



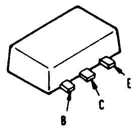
2SA1175


letter side
E
C
B

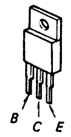
2SA1385



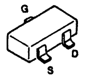
2SB1114-ZL
2SB1114-ZK
2SB798
2SB804
2SD1005
2SD1615A-GP
2SD999



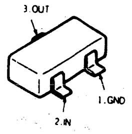
2SC2233



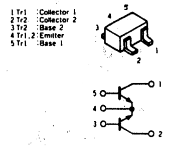
2SK300
2SK94
2SK94-X2



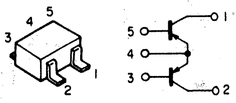
DTA114TU
DTA124EU
DTA144EU
DTA144WU
DTC114TU
DTC144EU
DTC144WU


3.OUT
1.GND
2.IN

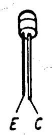
FMA2
FMG2
FMW1
FMW2


1 Tr1 :Collector 1
2 Tr2 :Collector 2
3 Tr2 :Base 2
4 Tr1,2 :Emitter
5 Tr1 :Base 1
5
4
3
1
2

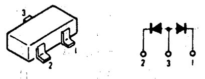
FMS1FE
FMS2



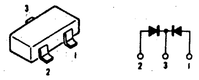
NJL7141E-S



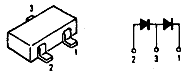
1S2835
DAP202
MA152WA



1S2837



1SS123



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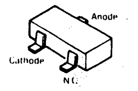
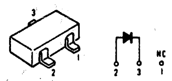
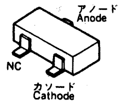
DA204U
DAN202U


Anode
Cathode
N.C.

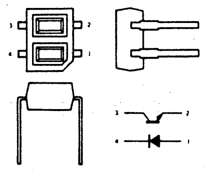
1SS193
E10DS2
E10QS04
RD3.0M
RD6.2M
RD12M-B2
RD9.1M-B1



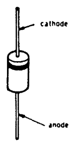
1SS196
DA106U


アノード
Anode
NC
カソード
Cathode

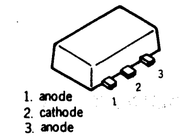
GP2S09-B



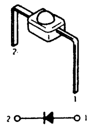
1S1587
HZ4ALL


cathode
anode

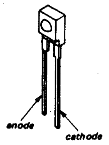
SB01-05CP


1. anode
2. cathode
3. anode
1
2
3

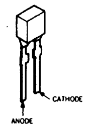
GL-1EG102
GL-1HY102



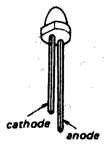
GL-450S


anode
cathode

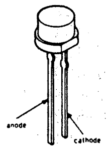
GL-9EG44


CATHODE
ANODE

TLR143


cathode
anode

TLR147


anode
cathode

SECTION 5
EXPLODED VIEWS

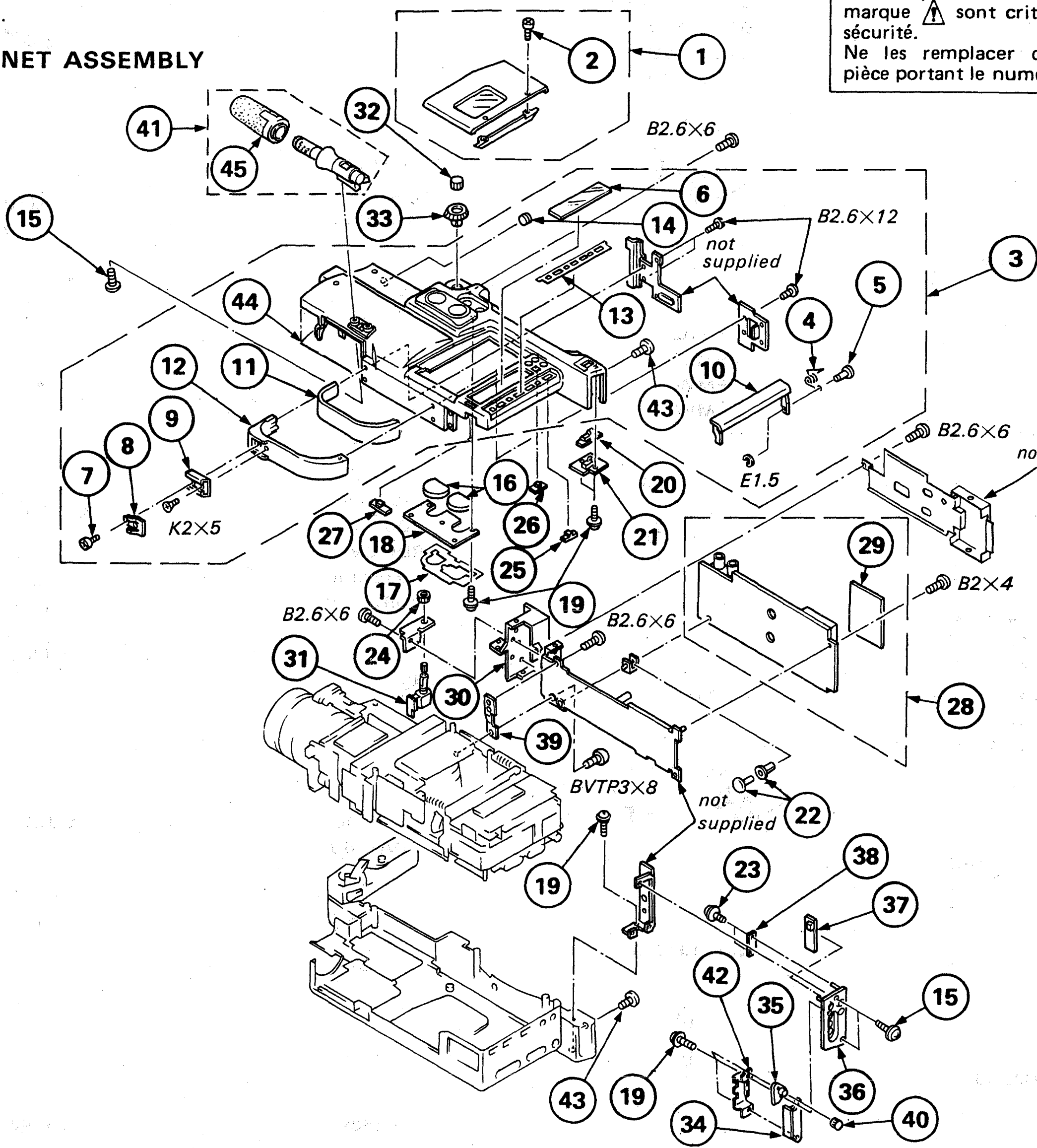
NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- –XX, –X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

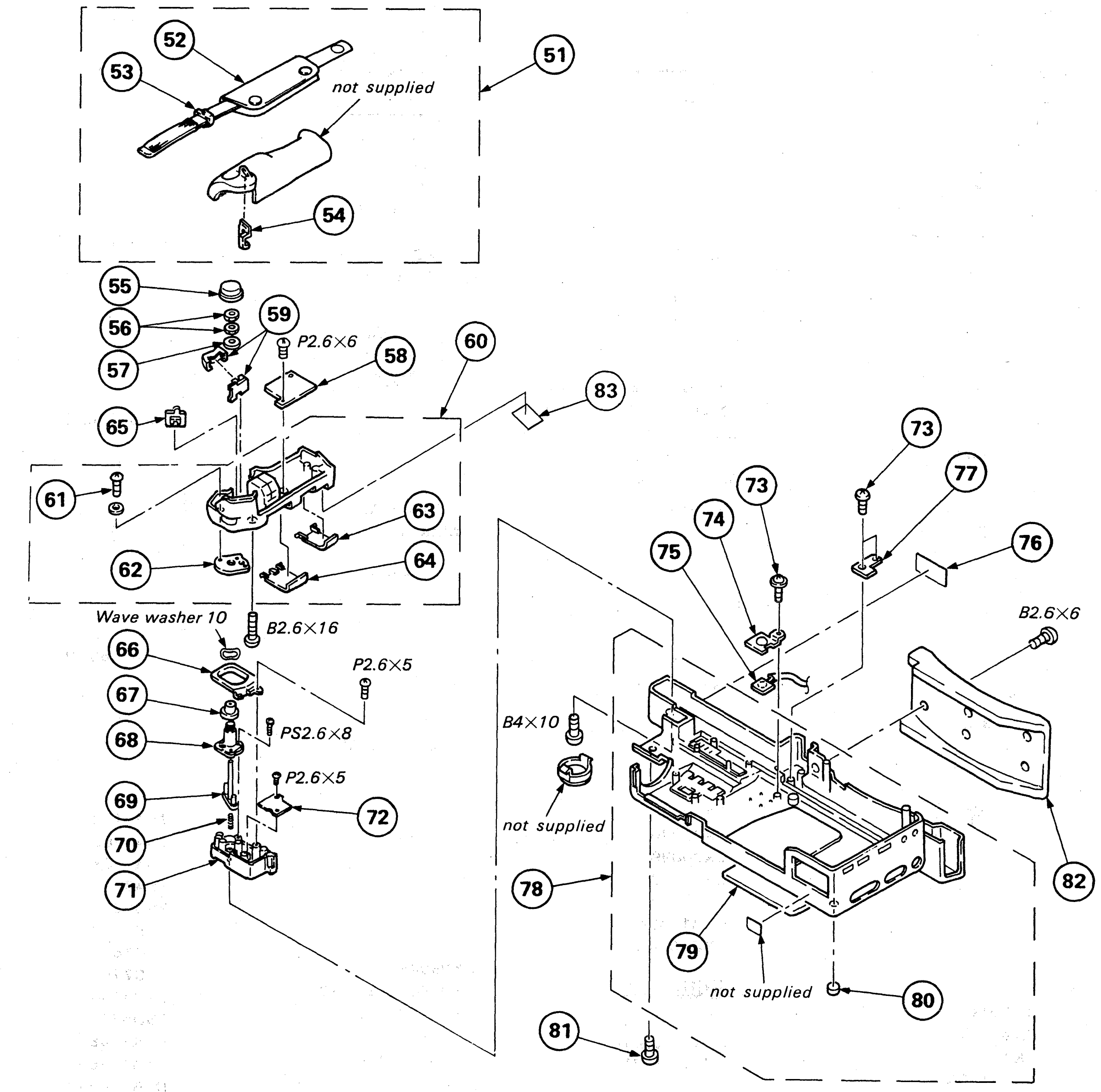
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. CABINET ASSEMBLY



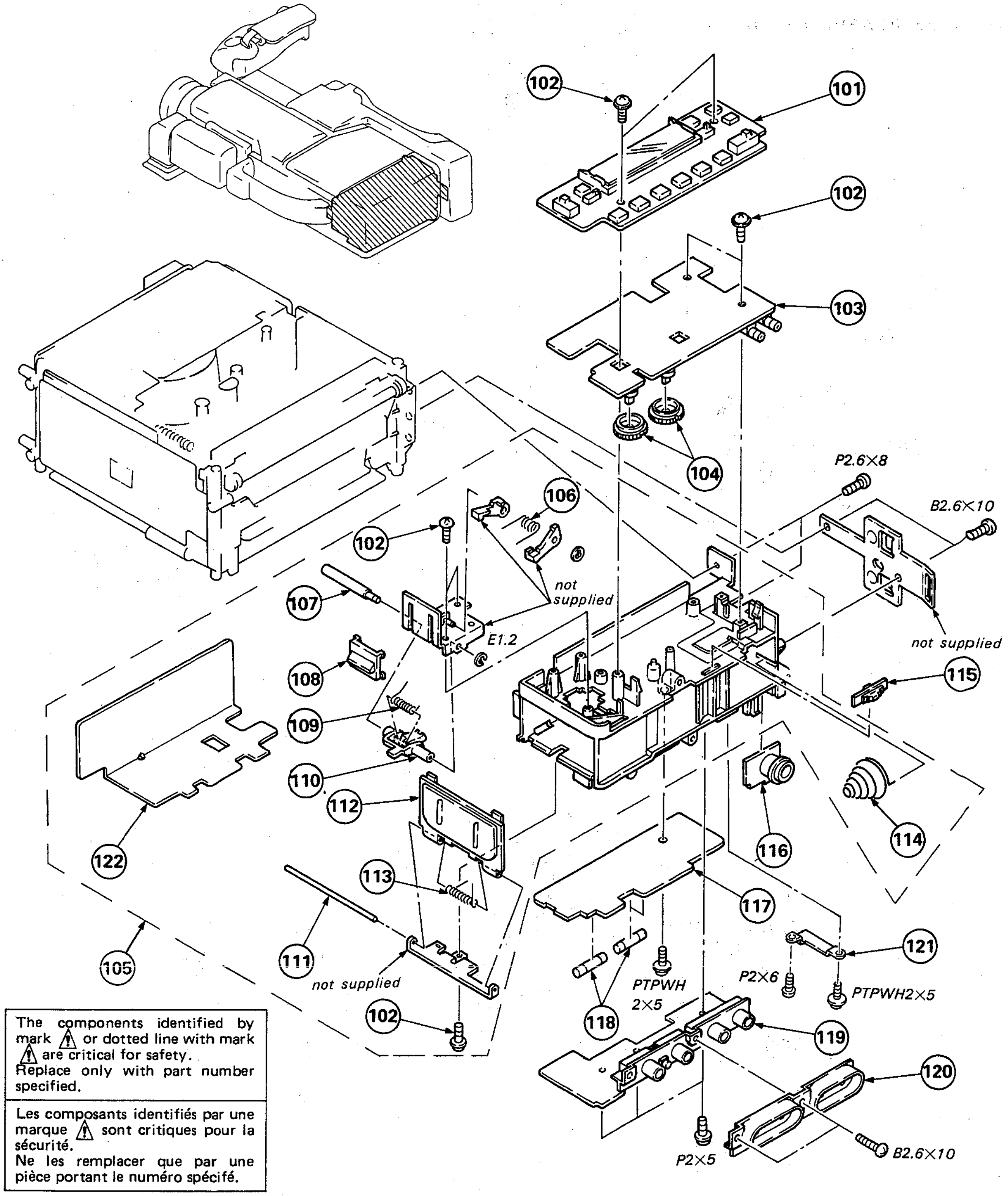
No.	Part No.	Description	Remark
1	X-3713-919-1	LID ASSY, CASSETTE	2
2	3-712-679-21	SCREW (2X5), TAPPING	
3	X-3713-939-1	CABINET (L) ASSY (E MODEL)	4-15, 44
	X-3713-963-1	CABINET (L) ASSY (US/CND MODEL)	4-15, 44
4	3-720-557-01	SPRING (F)	
5	3-720-560-01	SHAFT, SPRING	
6	3-721-791-01	WINDOW, INDICATION	
7	3-678-103-31	SCREW, EVF STOPPER	
8	3-688-940-01	SPRING, LEAF	
9	3-688-985-01	SHOE, ACCESSORY	
10	3-720-582-01	DOOR, FUNCTION	
11	3-720-597-01	HANDLE (LOWER)	
12	3-720-598-01	HANDLE (UPPER)	
13	3-721-732-01	PLATE, INDICATION	
14	3-721-751-01	CAP	
15	3-725-329-11	SCREW, +B M2.6X6	
16	1-520-499-11	METER, LEVEL	
17	*A-7070-591-A	ME-5 BOARD, COMPLETE	
18	*3-720-592-01	RETAINER, METER	
19	4-356-741-11	SCREW, TAPPING (BIND 2X6)	
20	3-720-546-01	KNOB, AUDIO DOWEL	
21	*A-7070-590-A	DL-22 BOARD, COMPLETE	
22	2-279-715-11	RIVET, NYLON	
23	4-356-741-01	SCREW, TAPPING (BIND 2X8)	
24	3-721-785-01	SCREW (M9), HEXAGON, SPECIAL	
25	3-713-540-01	KNOB, REC	
26	3-713-538-01	KNOB, EDIT	
27	3-713-539-01	KNOB, EJECT	
28	*A-7061-020-A	PC-32 BOARD, COMPLETE	29
29	A-7061-021-A	DA-6 BOARD, COMPLETE	
30	*3-720-593-01	TABEL, TRIPOD	
31	*A-7070-584-A	VR-17 BOARD, COMPLETE	
32	3-720-545-01	KNOB, VOLUME (RIGHT)	
33	3-720-544-01	KNOB, VOLUME (LEFT)	
34	*A-7070-587-A	PJ-19 BOARD, COMPLETE	
35	*A-7070-586-A	PV-3 BOARD, COMPLETE	
36	3-720-594-01	CABINET (REAR)	
37	*A-7070-588-A	HJ-4 BOARD, COMPLETE	
38	*3-721-756-01	RETAINER, HJ	
39	*3-721-750-01	BRACKET	
40	3-720-543-01	KNOB, HEADPHONE	
41	1-542-096-11	MICROPHONE (STEREO)	45
42	*3-721-795-01	REINFORCEMENT	
43	3-725-329-01	SCREW, +B M2.6X4	
44	3-725-339-01	SHEET, ACOUSTIC ABSORBENT	
45	X-2536-711-1	SCREEN ASSY, WINDOW	

5-2. CABINET (R), GRIP ASSEMBLIES



No.	Part No.	Description	Remark
51	X-3713-951-1	CABINET (LEFT) ASSY, GRIP	52-54
52	3-712-621-11	BELT, GRIP	
53	3-714-007-01	CLAMP, HOOD	
54	3-720-566-01	HOOK (G), BELT	
55	3-720-558-01	BUTTON, RELEASE	
56	3-712-653-01	NUT (M8), TUBE	
57	3-712-650-01	COLLAR	
58	*A-7070-598-A	LI-7 BOARD, COMPLETE	
59	1-571-373-11	SWITCH, PUSH (ZOOM T/W)	
60	X-3713-950-1	CABINET (RIGHT) ASSY, GRIP	61-64
61	3-686-999-01	SCREW (2.6X4) (C LOCK), (+) B	
62	3-721-775-01	RATCHET	
63	3-720-562-01	LID, BATTERY CASE	
64	3-720-568-01	LID, EARPHONE	
65	*A-7070-599-A	GS-4 BOARD, COMPLETE	
66	3-720-576-01	PLATE, ORNAMENTAL, CABINET (R)	
67	3-721-774-01	ATTACHMENT (G)	
68	X-3686-879-1	HOLDER ASSY, RATCHET	
69	X-3686-858-3	RETAINER ASSY, RATCHET	
70	3-534-235-00	SPRING, COMPRESSION	
71	*3-712-602-01	REINFORCEMENT, CABINET (L)	
72	*A-7070-597-A	ZS-3 BOARD, COMPLETE	
73	4-356-741-11	SCREW, TAPPING (BIND 2X6)	
74	*3-721-714-01	SHEET METAL, N MICROPHONE	
75	1-542-097-11	MICROPHONE UNIT	
76	*3-725-312-01	LABEL, MODEL NUMBER (U) (US/CND MODEL)	
	*3-725-355-01	LABEL, MODEL NUMBER (E) (E MODEL)	
77	*A-7070-589-A	MS-11 BOARD, COMPLETE	
78	X-3713-929-1	CABINET (R) ASSY	79, 80
79	*3-721-753-01	PAT	
80	3-688-931-11	FOOT, RUBBER	
81	3-713-790-01	SCREW (M2X6), TAPPING, P3	
82	3-721-703-01	PAT, SHOULDER	
83	*3-704-256-01	LABEL, CAUTION (US MODEL)	

5-3. BATTERY HOLDER ASSEMBLY


102
101
102
103
104
P2.6×8
106
B2.6×10
102
107
not supplied
E1.2
not supplied
115
108
109
110
112
116
114
122
113
117
121
111
not supplied
PTPWH
2×5
P2×6
PTPWH2×5
105
102
118
119
120
P2×5
B2.6×10

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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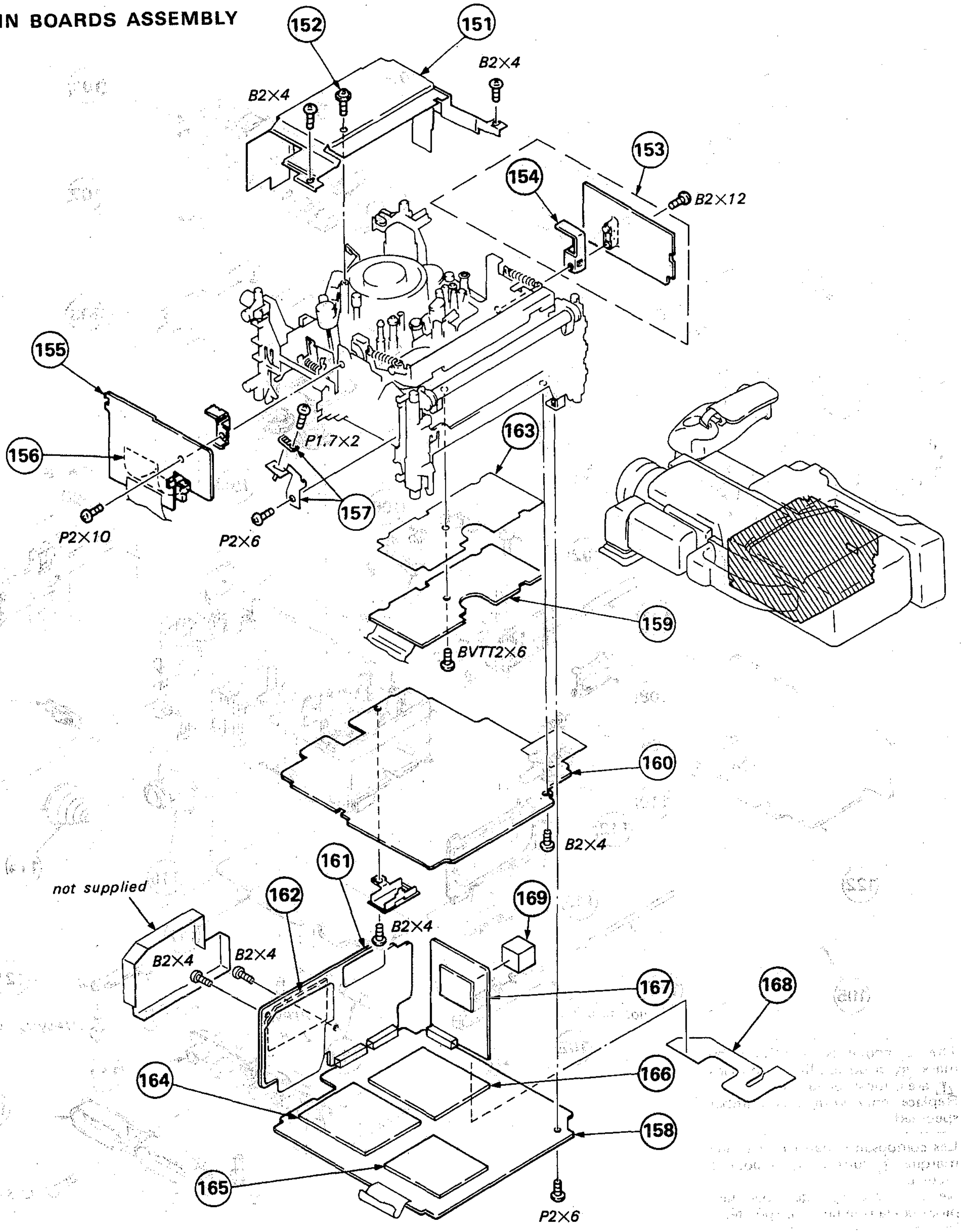
Ne les remplacer que par une pièce portant le numéro spécifé.

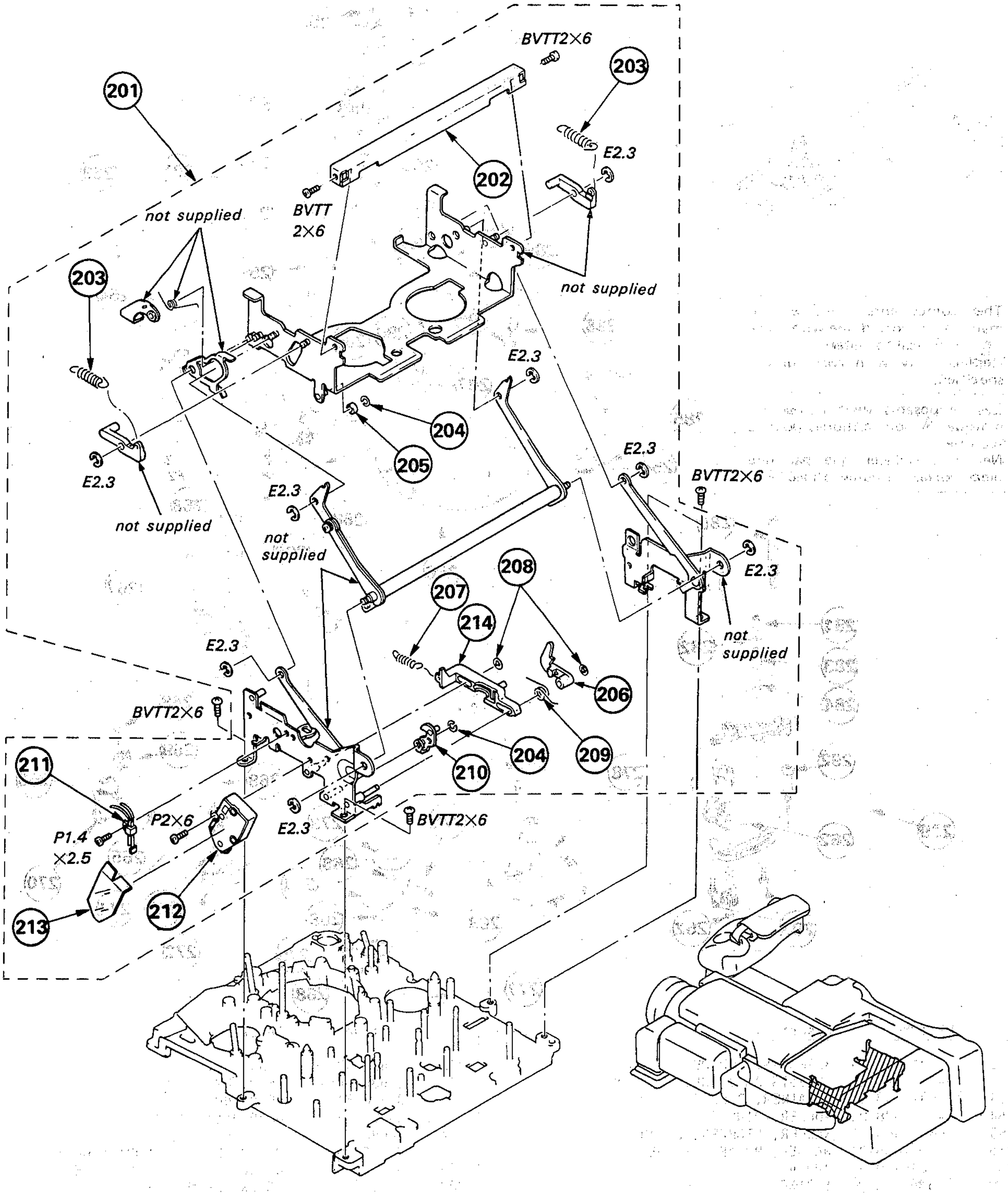
No.	Part No.	Description	Remark
101	*A-7061-029-A	SK-22 BOARD, COMPLETE	
102	4-356-741-11	SCREW, TAPPING (BIND 2X6)	
103	*A-7061-030-A	CC-13 BOARD, COMPLETE	
104	3-720-555-01	KNOB, V	
105	X-3713-920-1	HOLDER ASSY, BATTERY	106-114, 122
106	3-713-704-01	SPRING, TORSION	
107	3-691-999-01	SHAFT, BATTERY LOCK	
108	3-720-564-01	KNOB, RELEASE	
109	3-713-520-01	SPRING	
110	3-720-581-01	LOCK, BATTERY	
111	*3-720-536-01	SHAFT, LID	
112	3-721-737-01	LID, BATTERY	
113	3-720-537-01	SPRING, TORSION	
114	3-686-775-01	SPRING	
115	3-720-535-01	BUTTON, AU SELECTION	
116	*A-7070-582-A	RJ-3 BOARD, COMPLETE	
117	*A-7070-583-A	FU-62 BOARD, COMPLETE	
118	⚠1-532-741-11	FUSE, GLASS TUBE	
119	*A-7070-581-A	SC-9 BOARD, COMPLETE	
120	3-720-596-01	PLATE, JACK, P	
121	*3-712-611-01	PLATE, GROUND, L	
122	*3-721-738-01	PLATE, SHIELD, BATTERY	

5-4. MAIN BOARDS ASSEMBLY


152
151
B2×4
B2×4
153
154
B2×12
155
156
P1.7×2
163
157
P2×10
P2×6
159
BVTT2×6
160
B2×4
161
not supplied
162
169
B2×4
B2×4
B2×4
167
168
164
166
158
165
P2×6

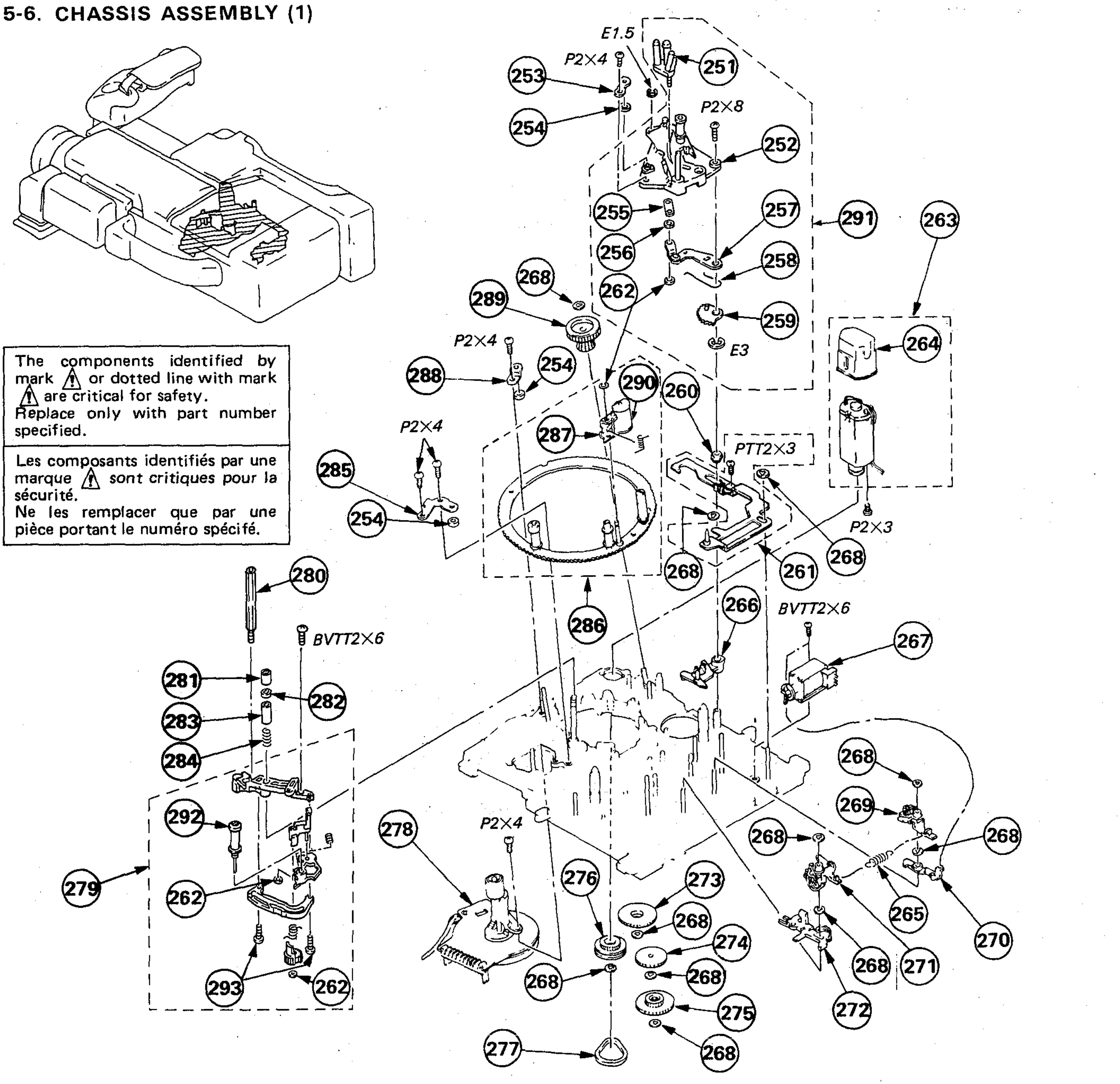
No.	Part No.	Description	Remark
151	*3-712-529-01	PLATE, SHIELD, MD	
152	3-703-502-31	SCREW	
153	*A-7061-019-A	TS-80 BOARD, COMPLETE	154
154	*X-3686-836-1	HOLDER ASSY, TOP	
155	*A-7070-580-A	DR-45 BOARD, COMPLETE	156
156	A-7070-249-A	FP-20 BOARD, COMPLETE	
157	1-807-744-11	SENSOR (DEW)	
158	*A-7061-014-A	VI-46 BOARD, COMPLETE	164-166
159	*A-7060-343-A	RS-18 BOARD, COMPLETE	
160	*A-7061-018-A	SS-83 BOARD, COMPLETE	
161	*A-7061-016-A	RP-57 BOARD, COMPLETE	162
162	A-7068-106-A	RP-59 BOARD, COMPLETE (HIC)	
163	3-712-411-01	INSULATOR, RS	
164	A-7068-109-A	VY-12 BOARD, COMPLETE (HIC)	
165	A-7068-108-A	VD-10 BOARD, COMPLETE (HIC)	
166	A-7068-114-A	VC-10 BOARD, COMPLETE (HIC)	
167	*A-7061-015-A	AU-45 BOARD, COMPLETE	
168	1-626-234-11	FP-107 FLEXIBLE BOARD	
169	*3-725-319-01	SPACER, PC BOARD	

5-5. CASSETTE COMPARTMENT ASSEMBLY


BVTT2×6
203
201
E2.3
202
BVTT
2×6
not supplied
203
not supplied
E2.3
204
205
E2.3
BVTT2×6
E2.3
not supplied
E2.3
not supplied
E2.3
208
207
214
not
supplied
E2.3
BVTT2×6
206
211
204
209
210
P2×6
P1.4
×2.5
E2.3
BVTT2×6
213
212

No.	Part No.	Description	Remark
201	A-7040-005-A	CASSETTE COMPARTMENT ASSY	202-214
202	3-686-718-01	REINFORCEMENT	
203	3-686-883-01	SPRING, TENSION	
204	3-578-265-11	WASHER, STOPPER	
205	*3-686-693-01	ROLLER, LOCK	
206	3-686-692-01	PREVENTION, SLIDER	
207	3-696-047-01	SPRING, TENSION	
208	3-669-465-00	WASHER (1.5), STOPPER	
209	3-686-694-01	SPRING, TORSION	
210	*X-3686-541-1	CLAW ASSY, LOCK	
211	1-553-226-00	SWITCH, LEAF (CASSETTE LOCK) (S901)	
212	*3-681-528-00	DAMPER	
213	*3-686-937-01	INSULATOR, DAMPER	
214	3-686-763-01	SLIDER, LOCK	

5-6. CHASSIS ASSEMBLY (1)


E1.5
P2×4
251
253
254
P2×8
252
255
257
291
263
256
258
268
289
262
259
264
P2×4
254
E3
288
290
260
P2×4
287
PTT2×3
285
254
P2×3
268
261
268
280
286
266
BVTT2×6
BVTT2×6
267
281
282
283
284
268
292
269
279
278
P2×4
268
268
276
273
262
268
265
274
270
268
268
271
293
262
275
272
277
268

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Replace only with part number specified.

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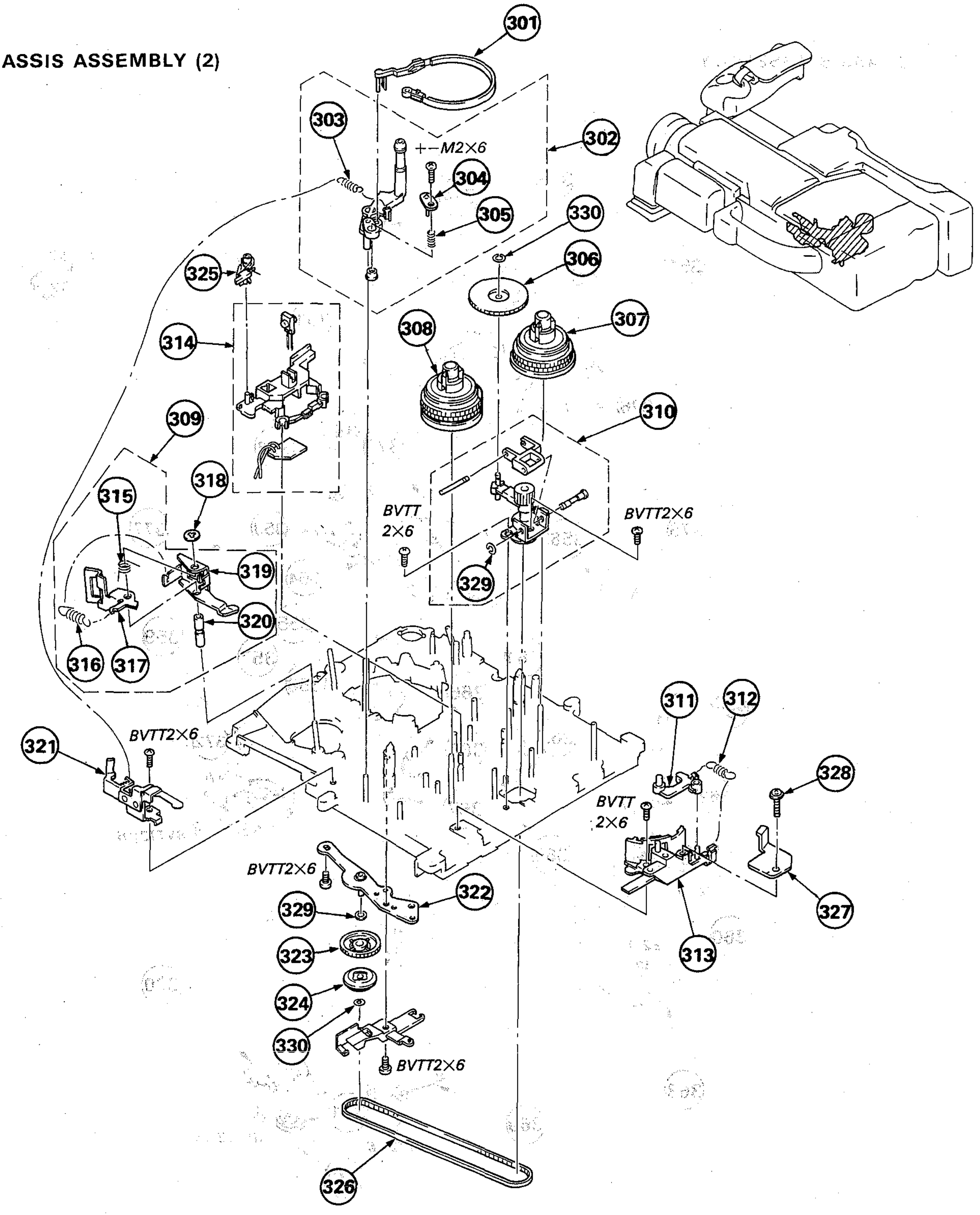
Ne les remplacer que par une pièce portant le numéro spécifé.

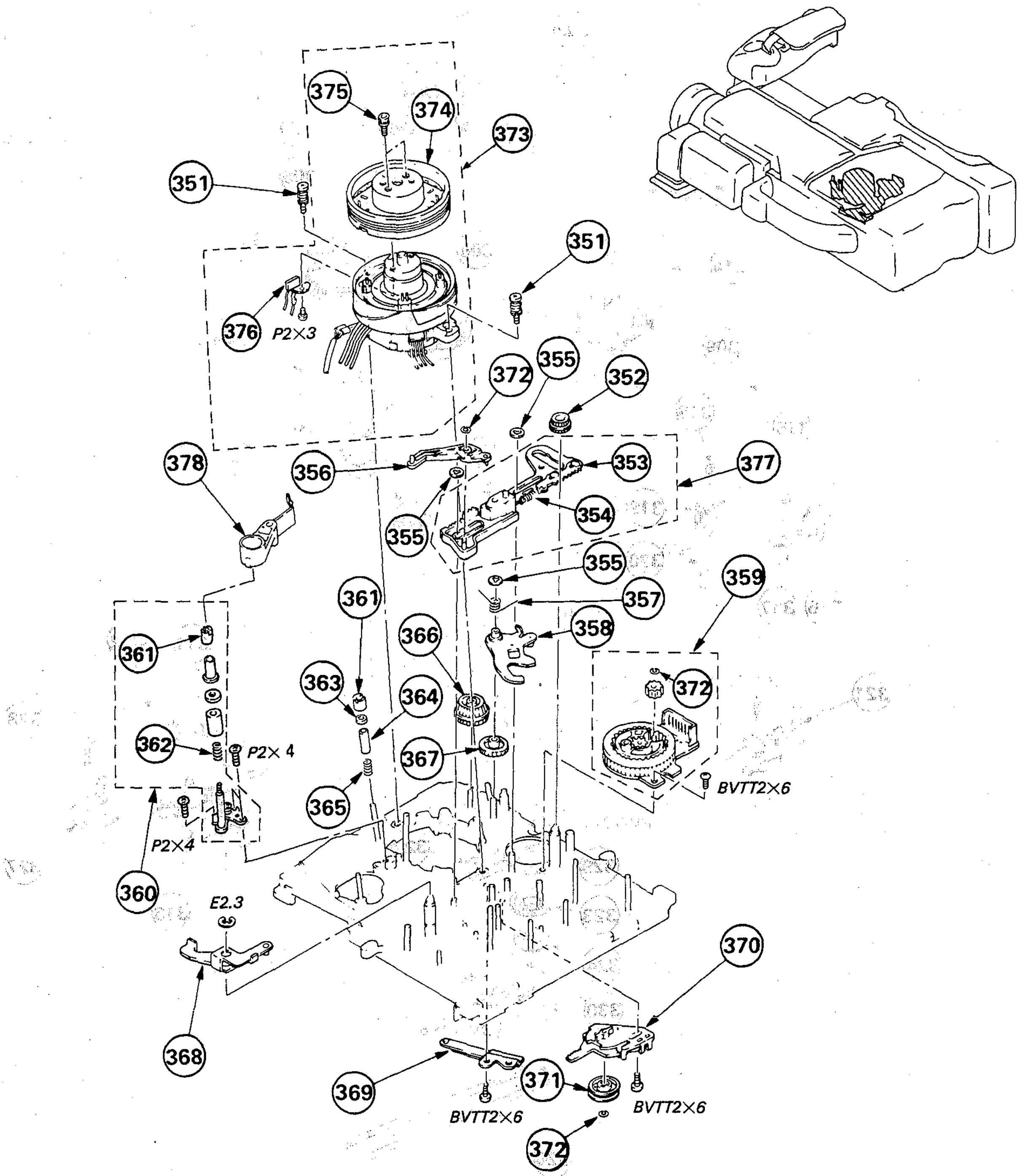
No.	Part No.	Description	Remark
251	A-7040-001-A	BASE ASSY, GUIDE	
252	A-704-000-1A	CHASSIS ASSY, GUIDE, SLANT	
253	*3-686-503-01	RETAINER, ROLLER	
254	3-697-538-01	ROLLER, RING	
255	3-686-663-01	WASHER, STOPPER, 2 GANG	
256	3-701-436-21	WASHER, POLYEHTHYLENE	
257	A-7040-001-A	ARM ASSY	
258	3-686-701-01	SPRING	
259	3-699-509-01	GEAR, SECTOR	
260	3-686-537-01	RETAINER, LOCK SLODER	
261	A-7040-072-A	SLIDER ASSY, LOCK	
262	3-315-384-31	WASHER, STOPPER	
263	A-7040-031-A	MOTOR ASSY, L (LOADING) (M901)	264
264	*3-686-757-01	CAP, SHIELD, L MOTOR	
265	3-686-882-01	SPRING, TENSION	
266	*3-686-636-04	ARM, T.S RELEASE	
267	⚠ 1-454-377-21	SOLENOID, PLUNGER	
268	3-669-465-00	WASHER (1.5), STOPPER	
269	X-3686-574-1	BRAKE ASSY, MAIN, TAKE-UP	
270	*3-686-635-01	ARM, P	
271	X-3711-991-1	BRAKE ASSY, S MAIN	
272	*3-686-629-01	SLIDER, SELECTION, UPPER & LOWER	
273	3-686-508-01	GEAR, NO.2	
274	3-686-545-01	GEAR, NO.3	
275	3-686-544-01	GEAR, NO.4	
276	X-3686-514-1	GEAR ASSY, NO.1	
277	3-686-546-01	BELT, L- MOTOR	
278	8-835-196-01	MOTOR, DC BHF-2802A (CAPSTAN) (M902)	
279	A-7040-054-A	GUIDE (P) ASSY, ENTRANCE	262, 292, 293
280	3-686-561-01	SCREW, DRUM GUARD	
281	3-686-724-01	NUT, GUIDE	
282	*3-686-894-01	FLANGE, #3 #4 GUIDE	
283	3-686-912-01	GUIDE, #3 #4	
284	3-699-609-01	SPRING, COMPRESSION	
285	*3-686-675-01	STOPPER, RING	
286	A-7040-067-A	RING ASSY, THREADING	262, 287, 290
287	X-3686-893-1	ARM ASSY, PINCH ROLLER	290
288	*3-686-911-01	PLATE, TOP, ROLLER	
289	3-697-518-01	GEAR, NO.10	
290	X-3686-892-1	PINCH ROLLER ASSY	
291	A-7040-001-A	GUIDE BLOCK ASSY, SLANT	251, 252, 255-259, 262
292	X-3686-676-1	GUIDE ASSY, #2	
293	3-316-938-31	SCREW (B1.4X4), TAPPING	

5-7. CHASSIS ASSEMBLY (2)


301
303
+-M2×6
302
304
305
330
306
325
308
307
314
310
309
318
BVTT 2×6
BVTT2×6
315
319
329
320
316
317
311
312
321
BVTT2×6
328
BVTT 2×6
BVTT2×6
322
329
327
323
313
324
330
BVTT2×6
326

No.	Part No.	Description	Remark
301	X-3686-531-1	BAND ASSY, TENSION REGULATOR	
302	A-7040-059-A	ARM ASSY, TENSION REGULATOR	303-305
303	3-699-519-01	SPRING, TENSION	
304	*X-3686-523-1	PLATE ASSY, TENSION REGULATOR	
305	3-699-609-01	SPRING, COMPRESSION	
306	X-3686-763-1	GEAR (B) ASSY, DRIVING	
307	X-3686-572-2	TABLE ASST, REEL, TAKE-UP	
308	X-3686-571-2	TABLE ASST, REEL, SUPPLY	
309	A-7040-008-A	ARM ASSY, PINCH PRESS	315-317, 319, 320
310	X-3686-750-1	DRIVING COMPLETE ASSY	329
311	*3-686-637-01	BRAKE (S), SOFT	
312	3-714-014-01	SPRING, TENSION	
313	*3-686-760-01	GUIDE, BAND	
314	*A-7070-024-A	LD-1 BOARD, COMPLETE	
315	3-686-568-01	SPRING, TORSION	
316	3-686-885-01	SPRING, TENSION	
317	A-7040-008-A	ARM, PINCH PRESS	
318	3-669-465-00	WASHER (1.5), STOPPER	
319	A-7040-008-A	ARM, PINCH LIMITER	
320	A-7040-008-A	SLEEVE, PINCH PRESS	
321	*X-3686-525-1	HOOK ASSY, SPRING	
322	*X-3686-529-1	BASE ASSY, CHANGE GEAR	
323	X-3686-520-1	GEAR ASSY, CHANGE	
324	*3-686-596-01	FLANGE, GEAR	
325	X-3686-590-1	BRAKE ASSY, REV	
326	3-686-646-01	BELT, TIMIMG	
327	*3-686-991-01	STOPPER, REEL TABLE	
328	3-669-480-11	+ PTPWH 2	
329	3-701-436-11	WASHER, 1.6 POLYETHYLENE	
330	3-315-384-31	WASHER, STOPPER	

5-8. CHASSIS ASSEMBLY (3)


375
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P2×3
372
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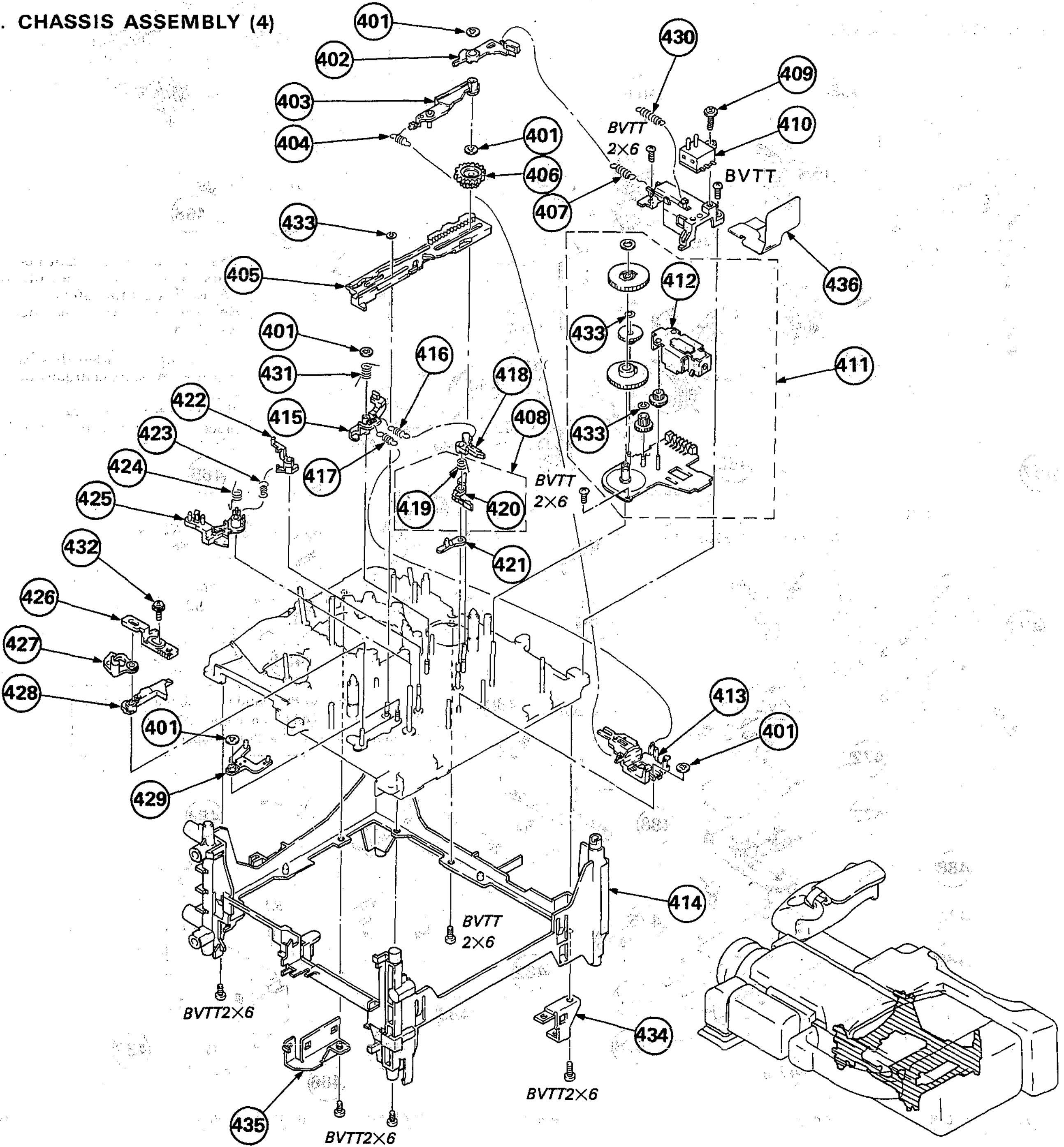
358
366
361
363
372
364
362
P2× 4
367
BVTT2×6
365
P2×4
360
E2.3
370
368
369
371
BVTT2×6
BVTT2×6
372

No.	Part No.	Description	Remark
351	X-3686-915-1	SCREW ASSY, FITTING	
352	3-686-702-01	GEAR, DRIVING, GUIDE, SLANT	
353	A-7040-010-A	SLIDER SUB ASSY, L	
354	3-686-886-01	SPRING, TENSION	
355	3-669-465-00	WASHER (1.5), STOPPER	
356	*X-3686-518-3	ARM ASSY	
357	3-686-540-01	SPRING, TORSION	
358	X-3686-579-1	CHANGE ASSY, DRIVE	
359	X-3712-403-1	L-SW ASSY	
360	A-7040-058-A	GUIDE BLOCK COMPLETE ASSY, #5	361, 362
361	3-686-724-01	NUT, GUIDE	
362	3-699-514-01	SPRING, COMPRESSION	
363	*3-686-894-01	FLANGE, #3 #4 GUIDE	
364	3-686-912-01	GUIDE, #3 #4	
365	3-699-609-01	SPRING, COMPRESSION	
366	3-686-539-01	GEAR, NO.9	
367	3-686-535-01	GEAR, NO.8	
368	*X-3686-509-1	LEVER ASSY, PINCH PRESS	
369	1-535-535-11	TERMINAL, SHAFT GROUND	
370	X-3686-521-1	BASE ASSY, IDLER	
371	X-3686-522-1	IDLER ASSY	
372	3-315-384-31	WASHER, STOPPER	
373	**A-7048-147-A**	**DRUM ASSY (DGH-29A-R)**	374-376
374	**A-7049-156-A**	**DRUM ASSY, ROTARY UPPER (DGR-29-R)**	
375	3-686-403-01	SCREW (2X5), BOLT WASHER	
376	1-806-975-11	SENSOR, DEW CONDENSATION	
377	*A-7040-010-A	SLIDER ASSY, L	353, 354
378	*3-688-917-01	STOPPER, TAPE	

5-9. CHASSIS ASSEMBLY (4)


401
402
430
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410
404
BVTT
2×6
401
BVTT
406
407
433
436
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401
433
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431
416
418
422
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433
423
BVTT
2×6
424
417
419
420
425
421
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426
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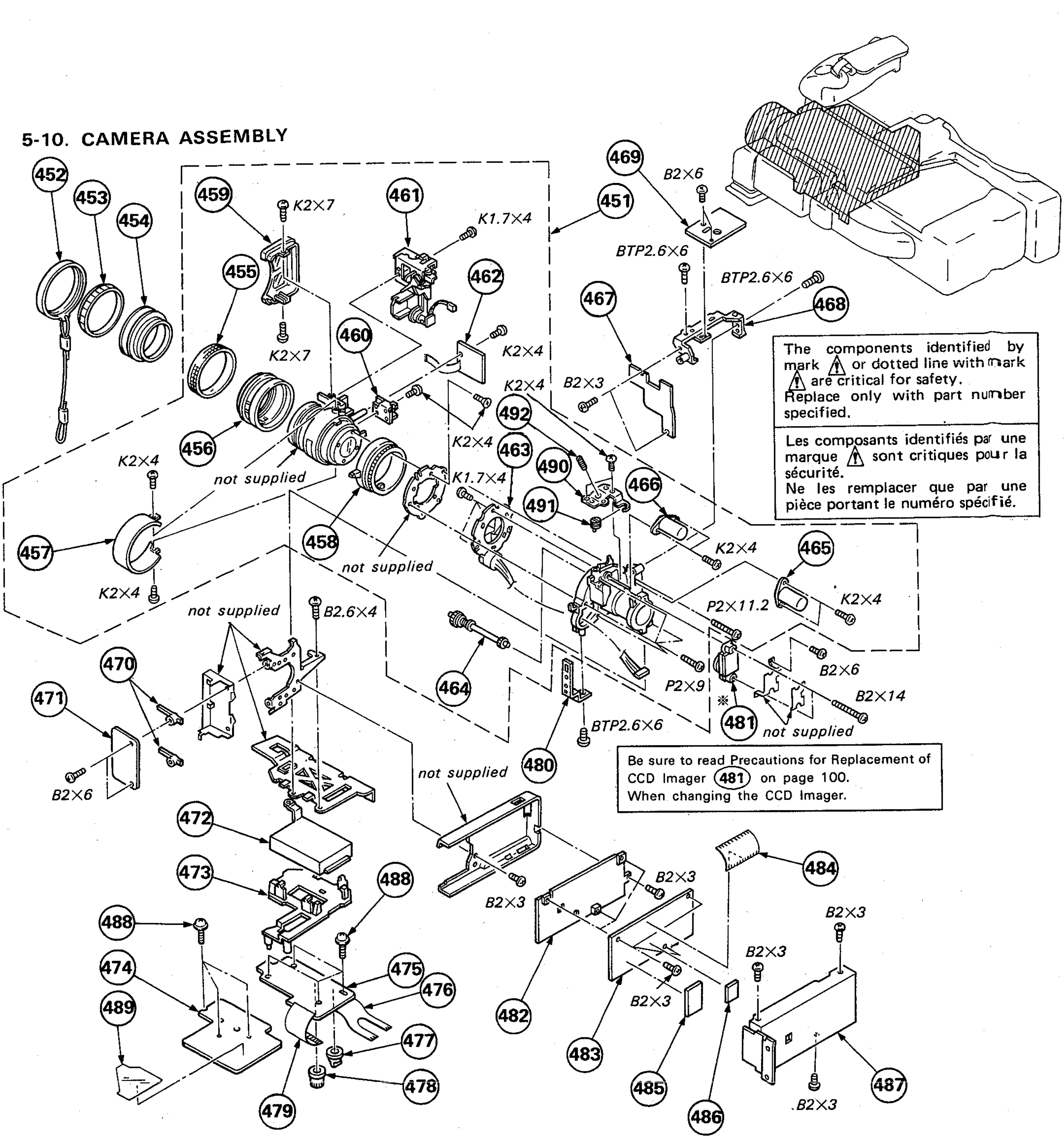
413
428
401
401
429
414
BVTT
2×6
BVTT2×6
434
BVTT2×6
435
BVTT2×6

No.	Part No.	Description	Remark
401	3-669-465-00	WASHER (1.5), STOPPER	
402	X-3686-777-1	BRAKE ASSY, T.S	
403	*X-3686-528-4	ARM ASSY, B RELEASE	
404	3-686-903-01	SPRING, TENSION	
405	*3-686-657-11	SLIDER, M	
406	3-686-909-01	GEAR, MODE OUTPUT	
407	3-699-649-01	SPRING, TENSION	
408	A-7040-016-D	ARM ASSY, RVS	419, 420
409	3-669-480-11	+ PTPWH 2	
410	1-554-942-11	SWITCH, PUSH (RECOG) (S902)	
411	A-7090-029-A	M-SW ASSY	412, 438
412	8-835-138-01	MOTOR, DC (DNR-5301B)	
413	*3-686-656-01	SLIDER, B RELEASE	
414	X-3713-910-1	FRAME ASSY, MOLD	
415	*3-686-634-01	ARM, RL	
416	3-686-906-01	SPRING, TENSION	
417	3-686-904-01	SPRING, TENSION	
418	X-3686-510-1	BRAKE ASSY, REW	
419	3-686-617-01	SPRING	
420	A-7040-016-D	ARM, RVS	
421	*3-686-580-01	ARM, SET UP	
422	3-686-996-01	BRAKE (S), HARD	
423	3-686-905-02	SPRING, TENSION	
424	3-686-603-04	SPRING	
425	*3-686-644-01	ARM, BAND	
426	*3-686-642-01	PLATE, ADJUSTMENT, BAND	
427	*3-686-755-01	DISK, EJECT	
428	*3-686-643-01	ARM, MODE	
429	*X-3686-530-1	ARM (A) ASSY, SELECTION	
430	3-699-650-01	SPRING, TENSION	
431	3-686-579-01	SPRING	
432	3-686-528-01	SCREW (2X6), +	
433	3-315-384-31	WASHER, STOPPER	
434	3-712-507-01	SHEET METAL, VI FITTING	
435	3-712-527-01	BRACKET, SS	
436	1-619-921-11	FP-19 FLEXIBLE BOARD	

5-10. CAMERA ASSEMBLY


452
453
454
459
K2×7
461
K1.7×4
469
B2×6
451
BTP2.6×6
BTP2.6×6
455
462
467
468
K2×7
460
K2×4
K2×4
B2×3
492
456
K2×4
K2×4
463
490
466
not supplied
K1.7×4
491
457
458
not supplied
K2×4
465
K2×4
not supplied
B2.6×4
P2×11.2
K2×4
470
B2×6
464
P2×9
B2×14
471
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481
not supplied
BTP2.6×6
480
B2×6
not supplied
472
484
473
488
B2×3
B2×3
B2×3
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B2×3
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B2×3
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B2×3

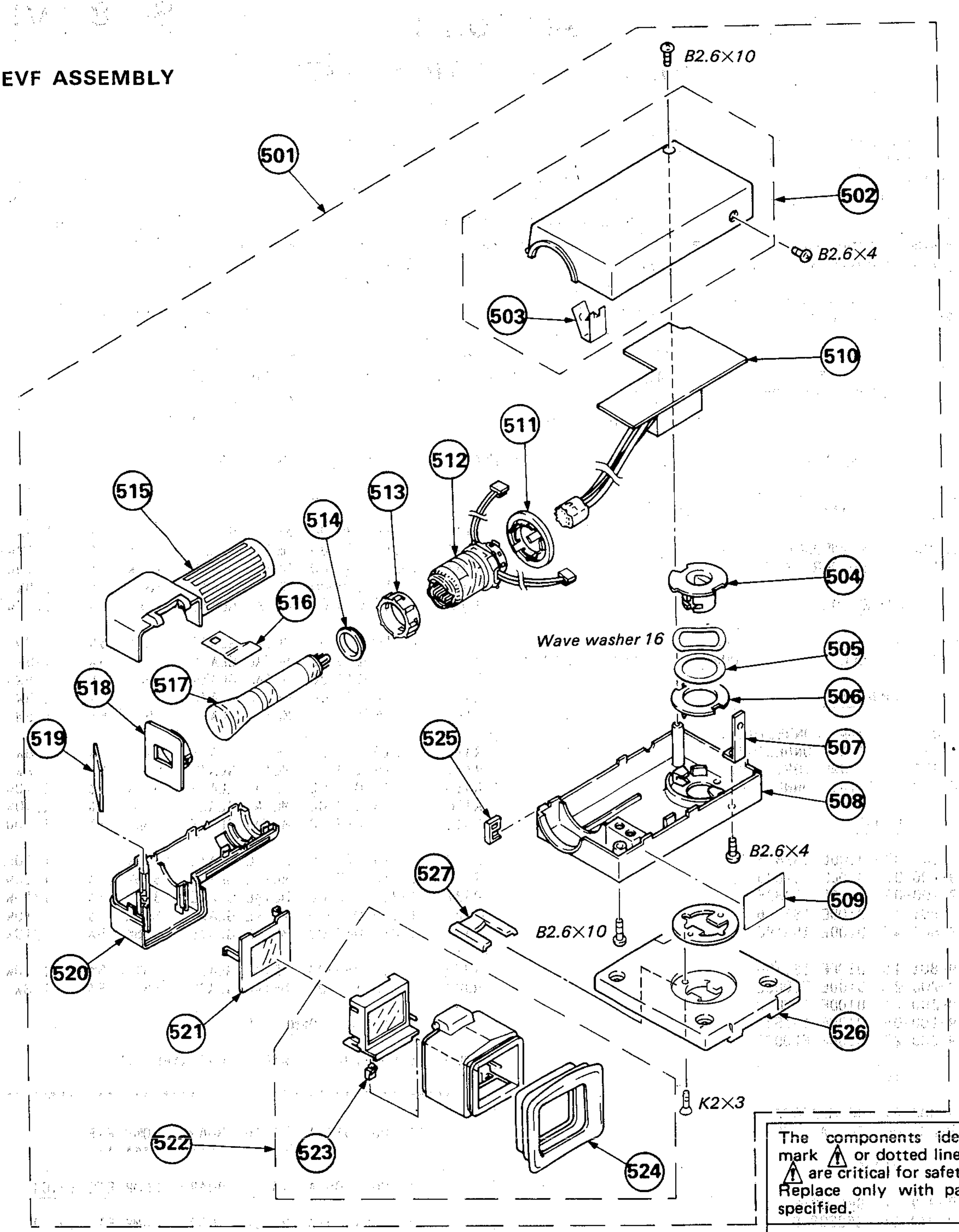
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Be sure to read Precautions for Replacement of CCD Imager (481) on page 100.
When changing the CCD Imager.

No.	Part No.	Description	Remark
451	1-547-262-11	LENS, ZOOM (VCL-1108YA)	455-469, 490-492
452	3-721-712-01	CAP, HOOD	
453	3-721-711-01	RING, HOOD	
454	3-721-710-01	HOOD, LENS	
455	3-707-416-01	RUBBER, FOCUS	
456	3-707-436-01	RING DISTANCE	
457	3-707-421-01	COVER	
458	3-707-441-01	RING ASSY, ZOOM	
459	3-707-420-01	COVER, AF	
460	3-707-437-01	SW ASSY, END	
461	3-707-439-01	RAY CATCHE ASSY, AF LUMINOUS	
462	*A-7051-144-A	AF-43 BOARD, COMPLETE	
463	3-707-438-01	IRIS ASSY	
464	3-707-440-01	SHAFT ASSY, DRIVE	
465	3-707-417-01	MOTOR ASSY, AF (FOCUS)	
466	3-707-418-01	MOTOR ASSY, PZ (ZOOM)	
467	*A-7061-026-A	AW-10 BOARD, COMPLETE	
468	*X-3713-928-1	BRACKET ASSY, LENS	
469	*A-7061-027-A	ZM-6 BOARD, COMPLETE	
470	*3-712-571-01	CALLOR, AW	
471	*A-7070-585-A	EM-2 BOARD, COMPLETE	
472 ⚠	.1-464-897-11	CONVERTER UNIT, DC-DC	
473	*3-721-702-01	FRAME, D/D CONVERTER	
474	*A-7061-150-A	FC-15 BOARD, COMPLETE	
475	*A-7061-025-A	CG-2 BOARD, COMPLETE	
476	1-626-251-11	FP-116 FLEXIBLE BOARD	
477	3-720-569-01	KNOB, SHUTTER	
478	3-720-561-01	KNOB, IRIS	
479	1-626-252-11	FP-117 FLEXIBLE BOARD	
480	*3-720-559-01	BRACKET, CABINET	
481	8-750-010-64	CCD IMAGER (IU022AK-10A)	
482	*A-7061-022-A	VC-36 BOARD, COMPLETE	
483	*A-7061-023-A	VC-37 BOARD, COMPLETE	485-487
484	1-626-250-11	FP-109 FLEXIBLE BOARD	
485	A-7068-082-A	DT-62 BOARD, COMPLETE (HIC)	
486	A-7068-107-A	CP-21 BOARD, COMPLETE (HIC)	
487	*X-3712-160-1	PLATE ASSY, SHIELD, VC	
488	4-356-741-11	SCREW, TAPPING (BIND 2X6)	
489	*X-3713-964-1	SHEET (C) ASSY, ELECTROSTATIC	
490	3-707-433-01	RETAINER, M	
491	3-707-434-01	PIN, ADJUSTMENT (M)	
492	3-707-435-01	SCREW, (M) FIXED	

5-11. EVF ASSEMBLY


B2.6×10
501
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B2.6×4
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Wave washer 16
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525
507
508
B2.6×4
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B2.6×10
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521
526
K2×3
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524

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

No.	Part No.	Description	Remark
501	A-7019-087-A	EVF ASSY (US/CND MODEL)	502-528
	A-7019-097-A	EVF ASSY (E MODEL)	502-528
502	X-3713-952-1	CASE ASSY, EVF (UPPER)	503
503	X-3686-873-1	SPRING ASSY	
504	3-712-664-01	SHAFT, EVF ROTARY	
505	3-712-655-01	SLIDER, EVF	
506	X-3713-960-1	HOLDER ASSY, CLICK	
507	*3-713-558-01	BRACKET	
508	3-712-672-21	CASE, EVF (LOWER)	
509	3-663-807-00	LABEL, CAUTION, EVF	
510	*A-7061-141-A	VF-7 BOARD, COMPLETE	
511	3-712-645-01	RING, CRT HOLDER	
512	⚠.1-451-296-11	DEFLECTION YOKE(BLACK & WHITE) (640UH ±5%) (L901)	
513	*3-712-658-01	RETAINER, CRT	
514	*3-712-660-01	RING, RUBBER	
515	*3-712-670-21	HOLDER (UPPER), CRT	
516	3-712-657-01	SPRING, LEAF	
517	⚠.1-546-061-11	CATHODE-RAY TUBE, B/W (V901)	
518	*3-712-659-01	COVER, CRT	
519	3-712-656-01	MIRROR, REFLECTION	
520	*3-712-669-21	HOLDER (LOWER), CRT	
521	X-3686-859-3	HOLDER (2) ASSY, LENS	
522	*A-7080-484-A	HOLDER ASSY, LENS	523, 524
523	3-712-566-01	KNOB, ADJUSTMENT	
524	3-696-016-11	EYE CAP	
525	*3-712-667-21	PLATE, ORNAMENTAL	
526	X-3713-927-1	CABINET (UPPER) ASSY	527
527	*3-712-647-01	SUPPORT, EVF ROTARY SHAFT	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are *critical for safety*. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifé.

When indicating parts by reference number, please include the board name.

- *Due to standardization,* replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- –XX, –X *mean* standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be *anticipated* when *ordering* these items.
- SEMICONDUCTORS
  In each case, U : μ, for example:
  UA...: μA..., UPA...: μPA...,
  UPB...: μPB..., UPC...: μPC...,
  UPD...: μPD...
- CAPACITORS
  MF : μF, PF : μμF
- COILS
  MMH : mH, UH : μH

Ref.No	Part No.	Description				Remark
	*A-7060-343-A	RS-18 BOARD, COMPLETE *********************				
	3-712-106-01	REINFORCEMENT (333)				
	3-712-410-01	HOLDER, RS				
		CAPACITOR				
C301	1-124-229-00	ELECT	33MF	20%	10V	
C302	1-124-225-00	ELECT	100MF	20%	6.3V	
		CONNECTOR				
CN301	*1-564-012-00	PIN, CONNECTOR 2P				
CN302	*1-564-012-00	PIN, CONNECTOR 2P				
CN304	*1-563-494-11	CONNECTOR, F.P.C 6P				
CN306	*1-564-012-00	PIN, CONNECTOR 2P				
		DIODE				
D301	8-719-100-03	DIODE 1S2835				
D302	8-719-100-03	DIODE 1S2835				
D303	8-719-100-03	DIODE 1S2835				
D304	8-719-801-41	DIODE 1SS196				
D305	8-719-801-41	DIODE 1SS196				
D306	8-719-801-41	DIODE 1SS196				
D307	8-719-200-27	DIODE E10DS2				
D308	8-719-200-27	DIODE E10DS2				
D309	8-719-100-05	DIODE 1S2837				
D310	8-719-200-27	DIODE E10DS2				
		IC				
IC301	8-759-908-81	IC MB3763PF				
IC302	8-759-207-00	IC TA7733F				
		DIODE				
PH301	8-719-939-11	GP2S09-B				
PH302	8-719-939-11	GP2S09-B				
PH303	8-719-939-11	GP2S09-B				
		TRANSISTOR				
Q301	8-729-199-92	TRANSISTOR 2SD999				
Q302	8-729-901-05	TRANSISTOR DTA124EK				
Q303	8-729-900-53	TRANSISTOR DTC114EK				
Q304	8-729-901-05	TRANSISTOR DTA124EK				
Q305	8-729-106-41	TRANSISTOR 2SB1114-ZL				
Q306	8-729-106-41	TRANSISTOR 2SB1114-ZL				
Q307	8-729-901-04	TRANSISTOR DTA114EK				
Q308	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q309	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q310	8-729-903-30	TRANSISTOR DTC144TK				
Q311	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q312	8-729-903-30	TRANSISTOR DTC144TK				
Q313	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q314	8-729-903-30	TRANSISTOR DTC144TK				
		RESISTOR				
R301	1-216-190-00	METAL GLAZE	470	5%	1/8W	
R302	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R303	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R304	1-216-170-00	METAL GLAZE	68	5%	1/8W	
R305	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R308	1-216-150-00	METAL GLAZE	10	5%	1/8W	
R309	1-216-150-00	METAL GLAZE	10	5%	1/8W	
R310	1-216-178-00	METAL GLAZE	150	5%	1/8W	
R311	1-216-178-00	METAL GLAZE	150	5%	1/8W	
R312	1-216-178-00	METAL GLAZE	150	5%	1/8W	
R313	1-216-160-00	METAL GLAZE	27	5%	1/8W	
R314	1-216-170-00	METAL GLAZE	68	5%	1/8W	
R315	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R316	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R317	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R319	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R320	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R321	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R323	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R324	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R325	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R327	1-216-154-00	METAL GLAZE	15	5%	1/8W	
		CONNECTOR				
W305	*1-558-782-11	WIRE, FLAT TYPE 20P				
**						
	*A-7061-014-A	VI-46 BOARD, COMPLETE *********************				
	A-7068-108-A	VD-10 BOARD, COMPLETE (HIC)				
	A-7068-109-A	VY-12 BOARD, COMPLETE (HIC)				
	A-7068-114-A	VC-10 BOARD, COMPLETE (HIC)				
		CAPACITOR				
C201	1-163-021-00	CERAMIC CHIP	0.01MF		50V	
C202	1-163-131-00	CERAMIC CHIP	390PF	5%	50V	
C203	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V	
C204	1-163-106-00	CERAMIC CHIP	36PF	5%	50V	
C205	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V	
C206	1-124-566-11	ELECT	120MF	20%	6.3V	
C207	1-124-442-00	ELECT	330MF	20%	6.3V	
C208	1-124-224-00	ELECT	47MF	20%	6.3V	
C209	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C210	1-124-566-11	ELECT	120MF	20%	6.3V	
C211	1-124-565-00	ELECT	56MF	20%	6.3V	
C212	1-124-245-00	ELECT	4.7MF	20%	16V	
C213	1-163-139-00	CERAMIC CHIP	820PF	5%	50V	
C214	1-124-224-00	ELECT	47MF	20%	6.3V	
C215	1-163-035-00	CERAMIC CHIP	0.047MF		50V	

Ref.No	Part No.	Description		Remark
C216	1-163-145-00	CERAMIC CHIP 0.0015MF	5%	50V
C217	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C218	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C219	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C220	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C221	1-124-462-00	ELECT 10MF	20%	16V
C222	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C228	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C229	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
C230	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V
C231	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C232	1-163-213-00	CERAMIC CHIP 0.0022MF	5%	50V
C233	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V
C235	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V
C236	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C237	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C238	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C239	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C240	1-124-224-00	ELECT 47MF	20%	6.3V
C241	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C242	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C243	1-124-587-11	ELECT 220MF	20%	6.3V
C244	1-124-222-00	ELECT 22MF	20%	6.3V
C245	1-124-222-00	ELECT 22MF	20%	6.3V
C246	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C247	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C248	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C249	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C250	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C251	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C252	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C253	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C255	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C256	1-124-566-11	ELECT 120MF	20%	6.3V
C257	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C259	1-163-104-00	CERAMIC CHIP 30PF	5%	50V
C260	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C261	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C262	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C263	1-124-462-00	ELECT 10MF	20%	16V
C264	1-163-087-00	CERAMIC CHIP 4PF	0.25PF	50V
C265	1-124-462-00	ELECT 10MF	20%	16V
C266	1-124-257-00	ELECT 2.2MF	20%	35V
C267	1-124-257-00	ELECT 2.2MF	20%	35V
C268	1-124-245-00	ELECT 4.7MF	20%	16V
C269	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V
C270	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C271	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C272	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C273	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C274	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C275	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C276	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V

Ref.No	Part No.	Description	Remark
C277	1-163-035-00	CERAMIC CHIP 0.047MF	50V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN201	*1-564-013-00	PIN, CONNECTOR 3P	
CN203	*1-564-012-00	PIN, CONNECTOR 2P	
CN204	*1-564-016-00	PIN, CONNECTOR 6P	

DIODE

Ref.No	Part No.	Description	Remark
D201	8-719-815-87	DIODE 1S1587	
D202	8-719-815-87	DIODE 1S1587	
D203	8-719-101-23	DIODE 1SS123	
D204	8-719-101-23	DIODE 1SS123	
D205	8-719-100-05	DIODE 1S2837	
D207	8-719-106-71	DIODE RD12M-B2	

DELAY LINE

Ref.No	Part No.	Description	Remark
DL201	1-415-504-11	DELAY LINE (DUAL-1H)	

CONVERTER

Ref.No	Part No.	Description	Remark
DR201⚠	1-464-898-11	CONVERTER, DC-DC	

FILTER

Ref.No	Part No.	Description	Remark
FL201	1-409-386-11	C E TRAP	
FL202	1-415-371-11	Y DL	
FL203	1-235-779-11	LPF	

IC

Ref.No	Part No.	Description	Remark
IC201	8-757-991-00	IC CX-7991	
IC202	8-759-754-64	IC NJM4560M	
IC203	8-759-939-68	IC TL062ACPS	
IC204	8-759-200-81	IC TC4053BF	
IC205	8-759-200-60	IC TA7060AP	

COIL

Ref.No	Part No.	Description	Remark
L201	1-408-969-21	INDUCTOR 8.2UH	
L202	1-410-828-11	INDUCTOR 47UH	
L203	1-410-828-11	INDUCTOR 47UH	
L204	1-408-972-21	INDUCTOR 15UH	
L205	1-408-960-21	INDUCTOR 1.5UH	
L206	1-410-371-21	INDUCTOR CHIP 1.5UH	
L207	1-408-982-11	INDUCTOR 100UH	
L208	1-408-982-11	INDUCTOR 100UH	
L209	1-408-982-11	INDUCTOR 100UH	
L210	1-408-789-21	INDUCTOR CHIP 100UH	
L211	1-408-985-21	INDUCTOR 180UH	
L212	1-408-795-21	INDUCTOR CHIP 330UH	
L213	1-408-797-11	INDUCTOR CHIP 470UH	
L214	1-410-825-11	INDUCTOR 27UH	
L215	1-410-627-11	COIL, CHOKE 100UH	
L216	1-410-377-11	INDUCTOR CHIP 4.7UH	
L217	1-410-381-11	INDUCTOR CHIP 10UH	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark
L218	1-410-825-11	INDUCTOR 27UH	
L219	1-410-375-11	INDUCTOR CHIP 3.3UH	

VARIABLE COIL

Ref.No	Part No.	Description	Remark
LV201	1-459-547-11	COIL, VARIABLE 15UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q201	8-729-904-07	TRANSISTOR FMG2	
Q202	8-729-905-15	TRANSISTOR DTC144WU	
Q203	8-729-100-76	TRANSISTOR 2SA812	
Q204	8-729-100-66	TRANSISTOR 2SC1623	
Q205	8-729-100-66	TRANSISTOR 2SC1623	
Q207	8-729-901-03	TRANSISTOR DTC144WK	
Q208	8-729-904-20	TRANSISTOR FMA2-T-99	
Q209	8-729-100-66	TRANSISTOR 2SC1623	
Q211	8-729-903-10	TRANSISTOR FMW1	
Q213	8-729-900-99	TRANSISTOR DTA144WK	
Q214	8-729-904-07	TRANSISTOR FMG2	
Q216	8-729-901-03	TRANSISTOR DTC144WK	
Q219	8-729-901-03	TRANSISTOR DTC144WK	
Q220	8-729-312-22	TRANSISTOR 2SA1122	
Q221	8-729-100-66	TRANSISTOR 2SC1623	
Q222	8-729-100-66	TRANSISTOR 2SC1623	
Q223	8-729-100-66	TRANSISTOR 2SC1623	
Q224	8-729-900-99	TRANSISTOR DTA144WK	
Q225	8-729-901-03	TRANSISTOR DTC144WK	
Q226	8-729-602-21	TRANSISTOR 2SC4154	
Q227	8-729-100-66	TRANSISTOR 2SC1623	
Q228	8-729-602-21	TRANSISTOR 2SC4154	
Q229	8-729-900-99	TRANSISTOR DTA144WK	
Q230	8-729-602-21	TRANSISTOR 2SC4154	
Q232	8-729-905-15	TRANSISTOR DTC144WU	
Q233	8-729-602-21	TRANSISTOR 2SC4154	
Q234	8-729-905-15	TRANSISTOR DTC144WU	
Q235	8-729-904-07	TRANSISTOR FMG2	
Q237	8-729-905-10	TRANSISTOR DTA144WU	
Q238	8-729-901-03	TRANSISTOR DTC144WK	
Q241	8-729-903-97	TRANSISTOR FMS1FE	
Q243	8-729-903-10	TRANSISTOR FMW1	
Q244	8-729-100-66	TRANSISTOR 2SC1623	
Q245	8-729-904-07	TRANSISTOR FMG2	
Q246	8-729-312-22	TRANSISTOR 2SA1122C	
Q247	8-729-903-97	TRANSISTOR FMS1FE	
Q248	8-729-904-20	TRANSISTOR FMA2	
Q249	8-729-602-36	TRANSISTOR 2SA1602	
Q250	8-729-109-42	TRANSISTOR 2SK94-X2	

RESISTOR

Ref.No	Part No.	Description	Remark
R201	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R202	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R203	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R204	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R205	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R206	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R207	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R208	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R209	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R210	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R211	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R212	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R213	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R214	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R215	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R217	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R218	1-216-015-00	METAL GLAZE 39 5% 1/10W	
R219	1-216-015-00	METAL GLAZE 39 5% 1/10W	
R220	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R221	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R222	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R223	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R224	1-216-021-00	METAL GLAZE 68 5% 1/10W	
R225	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R226	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R227	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R228	1-216-029-00	METAL GLAZE 150 5% 1/10W	
R229	1-216-019-00	METAL GLAZE 56 5% 1/10W	
R230	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R231	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R232	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R233	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R234	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R235	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R236	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R237	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R238	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R239	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R240	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R241	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R242	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R243	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R244	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R245	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R246	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R247	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R261	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R262	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R263	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R264	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R265	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R266	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R267	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R268	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R269	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R270	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R271	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R272	1-216-021-00	METAL GLAZE 68 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R273	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R274	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R275	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R276	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R278	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R279	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R280	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R281	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R282	1-216-009-00	METAL GLAZE	22	5%	1/10W	
R285	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R288	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R289	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R290	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R291	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R293	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R294	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R295	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R296	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R297	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R298	1-216-015-00	METAL GLAZE	39	5%	1/10W	
R299	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R300	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R301	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R302	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R303	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R304	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R305	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R306	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R307	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R308	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R309	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R310	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R311	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R312	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R313	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R314	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R315	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R316	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R317	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R318	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R319	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R320	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R321	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R322	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R323	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R324	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R325	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R326	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R327	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R328	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R329	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R330	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R331	1-216-047-00	METAL GLAZE	820	5%	1/10W	

Ref.No	Part No.	Description				Remark
R332	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R333	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R334	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R335	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R336	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R337	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R338	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R339	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R340	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R341	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R342	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R343	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R344	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R345	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R346	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R347	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R348	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

VARIABLE RESISTOR

RV204	1-230-520-11	RES, ADJ, METAL GLAZE 1K

THERMISTOR

TH201	1-807-752-11	THERMISTOR

CONNECTOR

W201	1-564-098-21	CONNECTOR, BOARD TO BOARD 8P
W202	1-564-610-31	CONNECTOR, BOARD TO BOARD

CRYSTAL

X201	1-567-303-11	VIBRATOR, CERAMIC (10.7MHz)

****

*A-7061-015-A AU-45 BOARD, COMPLETE
****

CAPACITOR

C401	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C402	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C403	1-124-499-11	ELECT	1MF	20%	50V
C404	1-124-465-00	ELECT	0.47MF	20%	50V
C405	1-124-225-00	ELECT	100MF	20%	6.3V
C406	1-124-225-00	ELECT	100MF	20%	6.3V
C407	1-124-225-00	ELECT	100MF	20%	6.3V
C408	1-124-257-00	ELECT	2.2MF	20%	35V
C409	1-124-245-00	ELECT	4.7MF	20%	16V
C410	1-124-222-00	ELECT	22MF	20%	6.3V
C411	1-124-225-00	ELECT	100MF	20%	6.3V
C412	1-124-222-00	ELECT	22MF	20%	6.3V
C413	1-124-225-00	ELECT	100MF	20%	6.3V
C420	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C421	1-124-257-00	ELECT	2.2MF	20%	35V

When indicating parts by reference number, please include the board name.

AU-45 RP-57

Ref.No	Part No.	Description			Remark
C422	1-163-021-00	CERAMIC CHIP 0.01MF		10%	50V
C423	1-163-141-00	CERAMIC CHIP 0.001MF		10%	50V
C424	1-162-993-11	CERAMIC CHIP 0.22MF		10%	16V
C425	1-163-141-00	CERAMIC CHIP 0.001MF		10%	50V
C426	1-162-993-11	CERAMIC CHIP 0.22MF		10%	16V
C428	1-124-222-00	ELECT	22MF	20%	6.3V
		CONNECTOR			
CN401	*1-564-012-61	PIN, CONNECTOR 2P			
CN402	*1-564-012-00	PIN, CONNECTOR 2P			
CN403	*1-564-014-51	PIN, CONNECTOR 4P			
		DIODE			
D401	8-719-100-65	DIODE RD12EB2			
		FILTER			
FL401	1-235-398-11	BPF			
		IC			
HIC401	8-741-150-50	IC SBX1505-01			
IC401	8-759-111-56	IC UPC4572G2			
		COIL			
L401	1-408-978-21	INDUCTOR	47UH		
		TRANSISTOR			
Q401	8-729-900-99	TRANSISTOR DTA144WK			
Q402	8-729-901-01	TRANSISTOR DTC144EK			
Q403	8-729-100-67	TRANSISTOR 2SC1623-L7			
		RESISTOR			
R401	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R402	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R403	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R404	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R405	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R406	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R407	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R410	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R420	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R421	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R422	1-216-025-00	METAL GLAZE	100	5%	1/10W
R423	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R424	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R425	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R426	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R427	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R428	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R450	1-216-073-00	METAL GLAZE	10K	5%	1/10W

Ref.No	Part No.	Description			Remark
		VARIABLE RESISTOR			
RV401	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K			
		CONNECTOR			
W401	*1-564-098-00	CONNECTOR, BOARD TO BOARD 8P			

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*A-7061-016-A RP-57 BOARD, COMPLETE
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A-7068-106-A RP-59 BOARD, COMPLETE (HIC)

Ref.No	Part No.	Description			Remark
		CAPACITOR			
C101	1-163-035-00	CERAMIC CHIP 0.047MF			50V
C102	1-163-035-00	CERAMIC CHIP 0.047MF			50V
C103	1-124-224-00	ELECT	47MF	20%	6.3V
C104	1-163-035-00	CERAMIC CHIP 0.047MF			50V
C105	1-163-035-00	CERAMIC CHIP 0.047MF			50V
C106	1-163-035-00	CERAMIC CHIP 0.047MF			50V
C107	1-124-222-00	ELECT	22MF	20%	6.3V
C108	1-163-101-00	CERAMIC CHIP 22PF		5%	50V
C109	1-124-462-00	ELECT	10MF	20%	16V
C110	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C111	1-124-222-00	ELECT	22MF	20%	6.3V
C112	1-163-035-00	CERAMIC CHIP 0.047MF			50V
C113	1-163-115-00	CERAMIC CHIP 82PF		5%	50V
C114	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C115	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C116	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C129	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C130	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C131	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C132	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C133	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C134	1-163-141-00	CERAMIC CHIP 0.001MF		5%	50V
C135	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C136	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C137	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C138	1-124-257-00	ELECT	2.2MF	20%	35V
C140	1-163-117-00	CERAMIC CHIP 100PF		5%	50V
C141	1-163-115-00	CERAMIC CHIP 82PF		5%	50V
C142	1-163-121-00	CERAMIC CHIP 150PF		5%	50V
C143	1-163-038-00	CERAMIC CHIP 0.1MF			25V
C144	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C145	1-124-224-00	ELECT	47MF	20%	6.3V
C146	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C147	1-163-021-00	CERAMIC CHIP 0.01MF			50V
C150	1-163-809-11	CERAMIC CHIP 0.047MF		10%	25V
C151	1-163-117-00	CERAMIC CHIP 100PF		5%	50V

When indicating parts by reference number, please include the board name.

CONNECTOR

Ref.No	Part No.	Description	Remark
CN101	*1-564-019-11	PIN, CONNECTOR 9P	
CN102	*1-564-013-00	PIN, CONNECTOR 3P	
CN103	*1-564-003-00	PIN, CONNECTOR 4P	
CN104	*1-564-005-00	PIN, CONNECTOR 6P	
CN105	*1-564-012-00	PIN, CONNECTOR 2P	

COIL

Ref.No	Part No.	Description	Remark
L101	1-408-876-00	INDUCTOR 0.18UH	
L102	1-410-824-11	INDUCTOR 22UH	
L103	1-408-972-21	INDUCTOR 15UH	
L104	1-410-824-11	INDUCTOR 22UH	
L109	1-408-948-00	INDUCTOR 220UH	
L110	1-408-970-21	INDUCTOR 10UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-901-02	TRANSISTOR DTC124XK	
Q102	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q103	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q104	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q105	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q106	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q107	8-729-901-05	TRANSISTOR DTA124EK	
Q108	8-729-901-00	TRANSISTOR DTC124EK	
Q109	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q120	8-729-901-04	TRANSISTOR DTA114EK	
Q121	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q122	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q123	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q124	8-729-901-04	TRANSISTOR DTA114EK	
Q125	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q126	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q127	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q128	8-729-117-54	TRANSISTOR 2SA1175	
Q129	8-729-100-76	TRANSISTOR 2SA812	
Q130	8-729-100-76	TRANSISTOR 2SA812	
Q132	8-729-901-03	TRANSISTOR DTC144WK	
Q133	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q134	8-729-100-67	TRANSISTOR 2SC1623-L7	

RESISTOR

Ref.No	Part No.	Description	Remark
R101	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R102	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R103	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R104	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R105	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R106	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R107	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R108	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R109	1-216-029-00	METAL GLAZE 150 5% 1/10W	
R110	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R111	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R112	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R113	1-216-021-00	METAL GLAZE 68 5% 1/10W	
R114	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R143	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R144	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R145	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R146	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R147	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R148	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R149	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R150	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R151	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R152	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R153	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R154	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R155	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R158	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R159	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R160	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R161	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R162	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R163	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R164	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R165	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R166	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R167	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R168	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R169	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R170	1-216-019-00	METAL GLAZE 56 5% 1/10W	
R171	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R172	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R173	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R174	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R175	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R176	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R177	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R178	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R179	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R180	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R181	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R182	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R183	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R184	1-216-218-00	METAL GLAZE 6.8K 5% 1/8W	
R185	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R186	1-216-013-00	METAL GLAZE 33 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV101	1-230-523-11	RES, ADJ, METAL GLAZE 10K	
RV102	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K	

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When indicating parts by reference number, please include the board name.

SS-83

Ref.No	Part No.	Description		Remark
	*A-7061-018-A	SS-83 BOARD, COMPLETE **********************		
	3-725-335-01	SPACER, CARD		
		CAPACITOR		
C151	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C152	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C153	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C154	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C155	1-163-034-00	CERAMIC CHIP 0.033MF	10%	25V
C156	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C157	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C158	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C159	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C160	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C161	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C162	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C163	1-124-462-00	ELECT 10MF	20%	6.3V
C164	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C165	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C166	1-163-034-00	CERAMIC CHIP 0.033MF	10%	25V
C167	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C168	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C169	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C170	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C171	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C172	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C173	1-135-099-00	TANTAL. CHIP 2.2MF	20%	6.3V
C174	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C175	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C176	1-163-034-00	CERAMIC CHIP 0.033MF	10%	25V
C177	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C178	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C179	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C180	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C181	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C182	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C183	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C184	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C185	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C186	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C187	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C188	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C189	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C190	1-163-034-00	CERAMIC CHIP 0.033MF	10%	25V
C191	1-163-034-00	CERAMIC CHIP 0.033MF	10%	25V
C192	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C193	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C194	1-124-234-00	ELECT 22MF	20%	16V
C195	1-124-222-00	ELECT 22MF	20%	6.3V
C196	1-124-584-00	ELECT 100MF	20%	10V
C197	1-124-462-00	ELECT 10MF	20%	10V

Ref.No	Part No.	Description		Remark
C198	1-124-222-00	ELECT 22MF	20%	6.3V
C199	1-124-257-00	ELECT 2.2MF	20%	35V
C200	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C201	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C202	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C203	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C204	1-124-462-00	ELECT 10MF	20%	6.3V
C205	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C206	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C207	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C208	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C209	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C210	1-163-139-00	CERAMIC CHIP 820PF	5%	50V
C211	1-127-487-00	ELECT(SOLID) 4.7MF	20%	10V
C212	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C213	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C214	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C215	1-124-222-00	ELECT 22MF	20%	6.3V
C216	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C217	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C218	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C219	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C220	1-126-099-11	ELECT 2.2MF	20%	35V
C221	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C222	1-163-020-00	CERAMIC CHIP 0.0082MF	10%	50V
C223	1-126-099-11	ELECT 2.2MF	20%	35V
C224	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C225	1-124-499-11	ELECT 1MF	20%	50V
C226	1-124-499-11	ELECT 1MF	20%	50V
C227	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C228	1-124-499-11	ELECT 1MF	20%	50V
C229	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C231	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C232	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V
C233	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V
C234	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C235	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C236	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C237	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C238	1-126-099-11	ELECT 2.2MF	20%	35V
C239	1-135-145-11	TANTAL. CHIP 0.47MF	20%	25V
C240	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C241	1-163-137-00	CERAMIC CHIP 680PF	5%	50V
C242	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C243	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C244	1-124-967-11	ELECT 10MF	20%	10V
C245	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C246	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C247	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C248	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C249	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C251	1-124-236-00	ELECT 47MF	20%	16V
C252	1-135-093-21	TANTAL. CHIP 10MF	20%	16V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
C254	1-163-809-11	CERAMIC CHIP 0.047MF 10%	25V
		CONNECTOR	
CN301	*1-564-029-00	PIN, CONNECTOR 4P	
CN302	*1-564-016-00	PIN, CONNECTOR 6P	
CN303	*1-564-013-00	PIN, CONNECTOR 3P	
CN304	*1-564-012-00	PIN, CONNECTOR 2P	
CN305	*1-564-014-00	PIN, CONNECTOR 4P	
CN306	*1-564-012-61	PIN, CONNECTOR 2P	
CN307	1-562-887-11	CONNECTOR, F.P.C 20P	
CN308	*1-564-017-00	PIN, CONNECTOR 7P	
CN309	1-563-492-11	CONNECTOR, F.P.C 19P	
CN310	*1-564-014-00	PIN, CONNECTOR 4P	
CN311	*1-564-019-11	PIN, CONNECTOR 9P	
CN314	*1-564-012-00	PIN, CONNECTOR 2P	
CN501	1-563-492-11	CONNECTOR, F.P.C 19P	
		DIODE	
D151	8-719-941-89	DIODE DAN202U	
D152	8-719-914-11	DIODE HZ4ALL	
D153	8-719-941-09	DIODE DAP202	
D154	8-719-941-09	DIODE DAP202	
D155	8-719-914-11	DIODE HZ4ALL	
D156	8-719-941-23	DIODE DA204U	
D157	8-719-941-23	DIODE DA204U	
D158	8-719-941-23	DIODE DA204U	
D159	8-719-941-23	DIODE DA204U	
D160	8-719-941-86	DIODE DAN202U	
D161	8-719-941-89	DIODE DA106U	
D162	8-719-941-23	DIODE DA204U	
D163	8-719-941-23	DIODE DA204U	
		FILTER	
FL151	1-235-612-11	BPF	
FL152	1-235-611-11	BPF	
		IC	
IC151	8-752-804-59	IC CXP5048H133QE	
IC152	8-752-805-16	IC CXP5046H-143Q	
IC153	8-759-925-43	IC MSM6411B-26GS-VK	
IC154	8-759-100-93	IC UPC393G2	
IC155	8-759-100-92	IC UPC4250G2	
IC156	8-759-100-93	IC UPC393G2	
IC157	8-759-922-54	IC S-81250AG	
IC158	8-759-937-56	IC S-8054ALB-LM-S	
IC159	8-759-107-68	IC CX20115A	
IC160	8-759-939-69	IC MB675121UPF	
IC161	8-752-003-50	IC CX20035	
IC162	8-759-928-56	IC CXA1042M	
IC163	8-759-100-95	IC UPC324G2	
IC164	8-759-925-60	IC BA6303F	
IC165	8-759-201-00	IC TC4052BF	

Ref.No	Part No.	Description	Remark
IC166	8-759-201-01	IC TC4066BF	
IC167	8-759-701-05	IC NJM2904M-T1	
		COIL	
L151	1-410-838-11	INDUCTOR 330UH	
L152	1-408-795-21	INDUCTOR CHIP 330UH	
L153	1-408-795-21	INDUCTOR CHIP 330UH	
L154	1-410-828-11	INDUCTOR 47UH	
L155	1-410-838-11	INDUCTOR 330UH	
L156	1-410-828-11	INDUCTOR 47UH	
L157	1-408-795-21	INDUCTOR CHIP 330UH	
L158	1-408-948-00	INDUCTOR 220UH	
L159	1-408-948-00	INDUCTOR 220UH	
		IC LINK	
PS151⚠	1-532-605-00	LINK, IC ICP-N10 (0.4A)	
		TRANSISTOR	
Q151	8-729-602-21	TRANSISTOR 2SC4154	
Q152	8-729-602-36	TRANSISTOR 2SA1602	
Q153	8-729-602-21	TRANSISTOR 2SC4154	
Q154	8-729-905-12	TRANSISTOR DTA144EU	
Q155	8-729-602-36	TRANSISTOR 2SA1602	
Q156	8-729-602-21	TRANSISTOR 2SC4154	
Q157	8-729-602-36	TRANSISTOR 2SA1602	
Q158	8-729-905-12	TRANSISTOR DTA144EU	
Q159	8-729-905-18	TRANSISTOR DTC144EU	
Q160	8-729-602-21	TRANSISTOR 2SC4154	
Q161	8-729-602-36	TRANSISTOR 2SA1602	
Q162	8-729-905-12	TRANSISTOR DTA144EU	
Q163	8-729-905-12	TRANSISTOR DTA144EU	
Q166	8-729-905-18	TRANSISTOR DTC144EU	
Q167	8-729-905-18	TRANSISTOR DTC144EU	
Q168	8-729-905-99	TRANSISTOR DTC114TU	
Q169	8-729-905-99	TRANSISTOR DTC114TU	
Q170	8-729-905-99	TRANSISTOR DTC114TU	
Q171	8-729-905-12	TRANSISTOR DTA144EU	
Q172	8-729-905-12	TRANSISTOR DTA144EU	
Q173	8-729-905-99	TRANSISTOR DTC114TU	
Q174	8-729-905-12	TRANSISTOR DTA144EU	
Q175	8-729-905-99	TRANSISTOR DTC114TU	
Q176	8-729-905-18	TRANSISTOR DTC144EU	
Q177	8-729-602-21	TRANSISTOR 2SC4154	
Q178	8-729-905-18	TRANSISTOR DTC144EU	
Q179	8-729-602-21	TRANSISTOR 2SC4154	
Q180	8-729-602-21	TRANSISTOR 2SC4154	
Q181	8-729-602-36	TRANSISTOR 2SA1602	
Q182	8-729-105-29	TRANSISTOR 2SA1385	
Q183	8-729-602-21	TRANSISTOR 2SC4154	
Q184	8-729-602-21	TRANSISTOR 2SC4154	
Q185	8-729-602-36	TRANSISTOR 2SA1602	
Q186	8-729-109-42	TRANSISTOR 2SK94-X2	
Q187	8-729-109-42	TRANSISTOR 2SK94-X2	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark
Q188	8-729-905-12	TRANSISTOR DTA144EU	
Q189	8-729-905-12	TRANSISTOR DTA144EU	
Q190	8-729-905-57	TRANSISTOR DTA124EU	
Q191	8-729-905-96	TRANSISTOR DTA114TU	
Q192	8-729-904-04	TRANSISTOR FMS2	
Q193	8-729-903-82	TRANSISTOR FMW2	
Q194	8-729-905-12	TRANSISTOR DTA144EU	
Q195	8-729-905-18	TRANSISTOR DTC144EU	
Q196	8-729-905-18	TRANSISTOR DTC144EU	
Q197	8-729-905-18	TRANSISTOR DTC144EU	
Q198	8-729-905-99	TRANSISTOR DTC114TU	
Q199	8-729-602-36	TRANSISTOR 2SA1602	
Q200	8-729-905-18	TRANSISTOR DTC144EU	
Q201	8-729-159-64	TRANSISTOR 2SD596	
Q202	8-729-159-64	TRANSISTOR 2SD596	
Q203	8-729-602-21	TRANSISTOR 2SC4154	
Q204	8-729-602-36	TRANSISTOR 2SA1602	
Q205	8-729-602-21	TRANSISTOR 2SC4154	
Q206	8-729-602-36	TRANSISTOR 2SA1602	
Q207	8-729-905-12	TRANSISTOR DTA144EU	
Q208	8-729-905-18	TRANSISTOR DTC144EU	
Q209	8-729-905-12	TRANSISTOR DTA144EU	
Q210	8-729-905-12	TRANSISTOR DTA144EU	
Q211	8-729-905-18	TRANSISTOR DTC144EU	
Q212	8-729-905-18	TRANSISTOR DTC144EU	
Q213	8-729-905-18	TRANSISTOR DTC144EU	
Q214	8-729-109-42	TRANSISTOR 2SK94-X2	

RESISTOR

Ref.No	Part No.	Description				Remark
R151	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R152	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R153	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R154	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R155	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R156	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R157	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R158	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R159	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R160	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R161	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R162	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R163	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R164	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R165	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R166	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R167	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R168	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R169	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R170	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R171	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R172	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R173	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R174	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R175	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R176	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R177	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R178	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R179	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R180	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R181	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R182	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R183	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R184	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R185	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R186	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R187	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R188	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W	
R189	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R191	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R192	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R193	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R194	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R195	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R196	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R197	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R198	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R199	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R200	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R201	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R202	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R203	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R204	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R205	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R206	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R207	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R208	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R209	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R210	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R211	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R212	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R213	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R214	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R215	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R216	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R217	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R219	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R220	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R221	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R222	1-216-123-11	METAL GLAZE	1.2M	5%	1/10W	
R223	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R224	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R225	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R226	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R227	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R228	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R229	1-216-085-00	METAL GLAZE	33K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R230	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R231	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R232	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R233	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R234	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R235	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R236	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R240	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R241	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R242	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R243	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R244	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R245	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R246	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R247	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R248	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R249	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R250	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R251	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R252	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R253	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R254	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R255	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R256	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R257	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R258	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R259	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R260	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R261	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R262	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R263	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R264	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R265	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R266	1-216-194-00	METAL GLAZE	680	5%	1/8W	
R267	1-216-194-00	METAL GLAZE	680	5%	1/8W	
R268	1-216-194-00	METAL GLAZE	680	5%	1/8W	
R269	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R270	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R271	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R272	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R273	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R274	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R275	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R276	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R277	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R279	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R280	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R281	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R282	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R283	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R284	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R285	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R286	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R287	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R288	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R289	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R290	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R291	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R292	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R293	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R294	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R295	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R296	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R297	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R298	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R299	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R300	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R301	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R302	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R303	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R304	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R305	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R307	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R308	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R309	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R310	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R311	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R312	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R313	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R314	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R315	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R316	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R317	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R318	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R319	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R320	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R321	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R322	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R323	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R324	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R326	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R327	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R328	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R329	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R330	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R331	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R332	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R333	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R334	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R335	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R336	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R337	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R338	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R339	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R340	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R341	1-216-081-00	METAL GLAZE	22K	5%	1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R342	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R343	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R344	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R345	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R346	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R347	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R348	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R349	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R350	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R351	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R352	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R353	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R354	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R355	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R356	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R357	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R358	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R359	1-216-158-00	METAL GLAZE	22	5%	1/8W	
R360	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R361	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R362	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R363	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R364	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R365	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R366	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R367	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R368	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R369	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R370	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R371	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R372	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R373	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R374	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R375	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R376	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R377	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R378	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV151	1-237-323-11	RES, ADJ, METAL GLAZE 1K	
RV152	1-237-328-11	RES, ADJ, METAL GLAZE 47K	
W315	1-626-249-11	FP-108 FLEXIBLE BOARD	
W502	*1-558-801-11	WIRE, FLAT TYPE 20P	

CRYSTAL

Ref.No	Part No.	Description	Remark
X151	1-567-346-11	OSCILLATOR, CERAMIC (5MHz)	
X152	1-567-346-11	OSCILLATOR, CERAMIC (5MHz)	
X153	1-567-192-11	OSCILLATOR, CERAMIC (4MHz)	

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Ref.No	Part No.	Description	Remark
	*A-7061-019-A	TS-80 BOARD, COMPLETE *********************	
	3-714-021-01	COVER, VR	

CAPACITOR

Ref.No	Part No.	Description			Remark
C451	1-124-256-00	ELECT	1.5MF	20%	50V
C452	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN506	1-562-887-11	CONNECTOR, F.P.C 20P	
CN507	*1-564-018-51	PIN, CONNECTOR 8P	
CN508	*1-564-012-00	PIN, CONNECTOR 2P	

IC

Ref.No	Part No.	Description	Remark
IC451	8-759-701-39	IC NJM3404AM	
IC452	8-759-201-01	IC TC4066BF	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q451	8-729-700-10	TRANSISTOR NJL7141E-S	
Q452	8-729-901-21	TRANSISTOR DTC144EK	
Q453	8-729-109-42	TRANSISTOR 2SK94-X2	

RESISTOR

Ref.No	Part No.	Description				Remark
R451	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R452	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R453	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R454	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R455	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R456	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R457	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R458	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R459	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R460	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R461	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R462	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R463	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R464	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R465	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R466	1-216-295-00	METAL GLAZE	0	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV451	1-230-528-11	RES, ADJ, METAL GLAZE 220K	
RV452	1-230-524-11	RES, ADJ, METAL GLAZE 22K	
RV453	1-230-524-11	RES, ADJ, METAL GLAZE 22K	
RV455	1-230-524-11	RES, ADJ, METAL GLAZE 22K	
RV456	1-230-528-11	RES, ADJ, METAL GLAZE 220K	
RV458	1-230-524-11	RES, ADJ, METAL GLAZE 22K	
RV459	1-230-523-11	RES, ADJ, METAL GLAZE 10K	

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
	*A-7061-020-A	PC-32 BOARD, COMPLETE **********************			
	A-7061-021-A	DA-6 BOARD, COMPLETE (HIC)			
	4-352-844-01	PIN, LEAD, COATING			
		CAPACITOR			
C001	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C002	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C003	1-124-255-00	ELECT	1MF	20%	50V
C004	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C005	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C006	1-124-236-00	ELECT	47MF	20%	16V
C007	1-124-462-00	ELECT	10MF	20%	16V
C008	1-124-462-00	ELECT	10MF	20%	16V
C010	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C022	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C025	1-124-255-00	ELECT	1MF	20%	50V
C026	1-124-245-00	ELECT	4.7MF	20%	16V
C028	1-124-255-00	ELECT	1MF	20%	50V
C029	1-124-245-00	ELECT	4.7MF	20%	16V
C030	1-124-245-00	ELECT	4.7MF	20%	16V
C031	1-124-245-00	ELECT	4.7MF	20%	16V
C032	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C033	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C034	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C035	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C036	1-124-245-00	ELECT	4.7MF	20%	16V
C037	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C038	1-162-587-91	CERAMIC CHIP	0.039MF	10%	25V
C040	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C041	1-124-245-00	ELECT	4.7MF	20%	16V
C042	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C043	1-162-587-91	CERAMIC CHIP	0.039MF	10%	25V
C045	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C046	1-135-129-21	TANTAL. CHIP	68MF	20%	4V
C047	1-135-101-21	TANTAL. CHIP	22MF	20%	6.3V
C048	1-162-587-91	CERAMIC CHIP	0.039MF	10%	25V
C049	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C050	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C051	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C052	1-135-129-21	TANTAL. CHIP	68MF	20%	4V
C053	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C054	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C055	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C056	1-135-104-00	TANTAL. CHIP	10MF	20%	4V
C057	1-135-072-21	TANTAL. CHIP	0.22MF	20%	35V
C058	1-135-158-21	TANTAL. CHIP	15MF	20%	4V
C059	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C060	1-135-129-21	TANTAL. CHIP	68MF	20%	4V
C061	1-135-101-21	TANTAL. CHIP	22MF	20%	6.3V
C062	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C063	1-162-587-91	CERAMIC CHIP	0.039MF	10%	25V
C064	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C065	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C066	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C067	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C068	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C069	1-135-104-00	TANTAL. CHIP	10MF	20%	4V
C070	1-135-072-21	TANTAL. CHIP	0.22MF	20%	35V
C072	1-135-158-21	TANTAL. CHIP	15MF	20%	4V
C073	1-124-245-00	ELECT	4.7MF	20%	16V
C074	1-124-245-00	ELECT	4.7MF	20%	16V
C075	1-124-245-00	ELECT	4.7MF	20%	16V
C076	1-124-462-00	ELECT	10MF	20%	16V
C077	1-124-462-00	ELECT	10MF	20%	16V
C078	1-124-245-00	ELECT	4.7MF	20%	16V
C079	1-124-245-00	ELECT	4.7MF	20%	16V
C080	1-124-229-00	ELECT	33MF	20%	10V
C081	1-124-229-00	ELECT	33MF	20%	10V
C082	1-124-245-00	ELECT	4.7MF	20%	16V
C083	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C084	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C085	1-124-120-11	ELECT	220MF	20%	16V
C086	1-124-229-00	ELECT	33MF	20%	10V
C087	1-124-584-00	ELECT	100MF	20%	10V
C088	1-124-222-00	ELECT	22MF	20%	6.3V
C089	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C090	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C091	1-135-098-21	TANTAL. CHIP	47MF	20%	6.3V
C092	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C093	1-135-101-21	TANTAL. CHIP	22MF	20%	6.3V
C094	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C095	1-124-462-00	ELECT	10MF	20%	16V
C100	1-124-245-00	ELECT	4.7MF	20%	16V
C101	1-124-245-00	ELECT	4.7MF	20%	16V
C102	1-124-245-00	ELECT	4.7MF	20%	16V
C103	1-124-254-00	ELECT	0.68MF	20%	50V
C104	1-124-254-00	ELECT	0.68MF	20%	50V
C105	1-124-967-11	ELECT	10MF	20%	10V
C106	1-124-967-11	ELECT	10MF	20%	10V
C109	1-135-103-00	TANTAL. CHIP	3.3MF	20%	4V
C110	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C111	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C112	1-135-101-21	TANTAL. CHIP	22MF	20%	6.3V
C113	1-124-120-11	ELECT	220MF	20%	16V
C116	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C117	1-163-139-00	CERAMIC CHIP	820PF	10%	50V
C118	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C120	1-163-139-00	CERAMIC CHIP	820PF	10%	50V
C121	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C122	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C123	1-124-255-00	ELECT	1MF	20%	50V
C124	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description			Remark
C125	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C126	1-124-236-00	ELECT 47MF	20%	16V	
C127	1-124-462-00	ELECT 10MF	20%	16V	
C128	1-124-462-00	ELECT 10MF	20%	16V	
C129	1-124-462-00	ELECT 10MF	20%	16V	
C130	1-124-462-00	ELECT 10MF	20%	16V	
C132	1-124-234-00	ELECT 22MF	20%	16V	
C133	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C134	1-124-462-00	ELECT 10MF	20%	16V	
C135	1-124-462-00	ELECT 10MF	20%	16V	
C136	1-124-245-00	ELECT 4.7MF	20%	16V	
C137	1-124-255-00	ELECT 1MF	20%	50V	
C138	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C140	1-124-255-00	ELECT 1MF	20%	50V	
C150	1-135-158-21	TANTAL. CHIP 15MF	20%	4V	
C151	1-135-158-21	TANTAL. CHIP 15MF	20%	4V	
C153	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C154	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C155	1-124-224-00	ELECT 47MF	20%	6.3V	
C156	1-124-224-00	ELECT 47MF	20%	6.3V	
C199	1-124-236-00	ELECT 47MF	20%	16V	
C200	1-124-236-00	ELECT 47MF	20%	16V	
C230	1-124-499-11	ELECT 1MF	20%	50V	
C231	1-124-499-11	ELECT 1MF	20%	50V	
C232	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C233	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C234	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C235	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C236	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C237	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C238	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C239	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C240	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V	
C241	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C242	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C243	1-163-133-00	CERAMIC CHIP 470PF	5%	50V	
		CONNECTOR			
CN001	1-566-525-11	CONNECTOR, FPC (ZIF) 9P			
CN002	1-566-530-11	CONNECTOR, FPC (ZIF) 14P			
CN003	*1-564-003-00	PIN, CONNECTOR 4P			
CN004	*1-564-017-00	PIN, CONNECTOR 7P			
CN005	*1-564-014-00	PIN, CONNECTOR 4P			
CN006	*1-564-013-00	PIN, CONNECTOR 3P			
CN007	*1-564-001-11	PIN, CONNECTOR 2P			
CN008	*1-564-012-00	PIN, CONNECTOR 2P			
CN011	*1-564-004-00	PIN, CONNECTOR 5P			
CN012	*1-564-005-00	PIN, CONNECTOR 6P			
CN013	*1-564-002-00	PIN, CONNECTOR 3P			
CN014	*1-564-004-00	PIN, CONNECTOR 5P			
CN030	*1-564-001-61	PIN, CONNECTOR 2P			
CN031	*1-564-003-00	PIN, CONNECTOR 4P			

Ref.No	Part No.	Description	Remark
		DIODE	
D001	8-719-100-05	DIODE 1S2837	
D002	8-719-100-05	DIODE 1S2837	
D003	8-719-100-05	DIODE 1S2837	
D004	8-719-100-03	DIODE 1S2835	
D005	8-719-100-05	DIODE 1S2837	
D006	8-719-100-03	DIODE 1S2835	
D007	8-719-100-03	DIODE 1S2835	
D008	8-719-100-05	DIODE 1S2837	
D009	8-719-100-05	DIODE 1S2837	
D012	8-719-801-45	DIODE 1SS187	
D013	8-719-101-23	DIODE 1SS123	
D014	8-719-101-23	DIODE 1SS123	
D015	8-719-801-47	DIODE 1SS187	
D020	8-719-100-05	DIODE 1S2837	
D050	8-719-100-05	DIODE 1S2837	
D051	8-719-801-48	DIODE 1SS193	
D121	8-719-101-23	DIODE 1SS123	
		FUSE	
F001	⚠.1-532-953-11	FUSE, MICRO (125V/0.25A)	
		FILTER	
FL001	1-236-109-11	FILTER, LOW PASS	
FL002	1-236-109-11	FILTER, LOW PASS	
FL003	1-236-043-11	FILTER, LOW PASS	
FL004	1-236-043-11	FILTER, LOW PASS	
		IC	
IC002	8-759-603-27	IC M5201FP	
IC004	8-759-701-24	IC NJM3414M	
IC005	8-759-603-27	IC M5201FP	
IC006	8-759-603-27	IC M5201FP	
IC007	8-759-603-27	IC M5201FP	
IC008	8-759-603-27	IC M5201FP	
IC009	8-759-603-27	IC M5201FP	
IC010	8-759-603-27	IC M5201FP	
IC011	8-752-009-90	IC CX20099	
IC012	8-752-017-60	IC CX20176	
IC014	8-759-961-38	IC BA6138	
IC015	8-759-701-01	IC NJM2904M	
IC016	8-757-991-00	IC CX-7991	
IC020	8-759-700-43	IC NJM4558M	
IC021	8-759-700-43	IC NJM4558M	
		JACK	
J001	1-507-797-21	(STEREO MIC JACK L/R)	
		COIL	
L001	1-408-789-21	INDUCTOR CHIP 100UH	
L002	1-408-783-00	INDUCTOR CHIP 33UH	
L003	1-408-783-00	INDUCTOR CHIP 33UH	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
L004	1-410-421-11	INDUCTOR 15UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q003	8-729-901-01	TRANSISTOR DTC144EK	
Q004	8-729-904-07	TRANSISTOR FMG2	
Q005	8-729-904-07	TRANSISTOR FMG2	
Q006	8-729-904-07	TRANSISTOR FMG2	
Q007	8-729-901-01	TRANSISTOR DTC144EK	
Q009	8-729-100-76	TRANSISTOR 2SA812	
Q010	8-729-901-06	TRANSISTOR DTA144EK	
Q011	8-729-901-01	TRANSISTOR DTC144EK	
Q012	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q013	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q014	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q015	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q016	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q017	8-729-901-01	TRANSISTOR DTC144EK	
Q018	8-729-900-98	TRANSISTOR DTC143TK	
Q019	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q020	8-729-901-01	TRANSISTOR DTC144EK	
Q021	8-729-102-83	TRANSISTOR 2SB624-T1BV4	
Q022	8-729-903-10	TRANSISTOR FMW1	
Q023	8-729-901-01	TRANSISTOR DTC144EK	
Q024	8-729-901-01	TRANSISTOR DTC144EK	
Q025	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q026	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q027	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q028	8-729-901-01	TRANSISTOR DTC144EK	
Q029	8-729-903-10	TRANSISTOR FMW1	
Q030	8-729-109-43	TRANSISTOR 2SK94-X3	
Q031	8-729-109-43	TRANSISTOR 2SK94-X3	

RESISTOR

Ref.No	Part No.	Description	Remark
R001	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R002	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R003	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R004	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R005	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R006	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R007	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R008	1-216-109-00	METAL GLAZE 330K 5% 1/10W	
R009	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R010	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R011	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R012	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R013	1-216-127-11	METAL GLAZE 1.8M 5% 1/10W	
R015	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R016	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R017	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R019	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R020	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R023	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R024	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R025	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R026	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R027	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R028	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R029	1-216-748-11	METAL GLAZE 39K 5% 1/10W	
R031	1-216-103-00	METAL GLAZE 180K 5% 1/10W	
R032	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R033	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R034	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R035	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R036	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R038	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R039	1-216-748-11	METAL GLAZE 39K 5% 1/10W	
R040	1-216-103-00	METAL GLAZE 180K 5% 1/10W	
R041	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R042	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R043	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R044	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R045	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R046	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R047	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R048	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R049	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R050	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R051	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R052	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R053	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R054	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R055	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R056	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R057	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R058	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R059	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R060	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R061	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R062	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R063	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R064	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R065	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R066	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R067	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R068	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R069	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R070	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R071	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R072	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R073	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R074	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R075	1-216-017-00	METAL GLAZE 47 5% 1/10W	
R076	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R077	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R078	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R079	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R080	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R081	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R082	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R083	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R084	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R085	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R086	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R087	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R088	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R089	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R090	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R091	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R092	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R093	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R094	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R095	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R096	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R097	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R098	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R099	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R100	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R101	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R102	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R103	1-216-019-00	METAL GLAZE	56	5%	1/10W	
R104	1-216-019-00	METAL GLAZE	56	5%	1/10W	
R105	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R106	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R108	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R109	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R110	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R111	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R112	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R112	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R113	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R114	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R115	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R116	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R117	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R118	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R119	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R120	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R121	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R122	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R123	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R124	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R126	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R127	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R128	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R129	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R132	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R133	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R138	1-216-113-00	METAL GLAZE	470K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R139	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R140	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R141	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R142	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R143	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R144	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R145	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R146	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R147	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R148	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R149	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R150	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R151	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R152	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R153	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R154	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R155	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R158	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R159	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R160	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R161	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R164	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R165	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R166	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R167	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R168	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R169	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R170	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R171	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R172	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R173	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R174	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R175	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R176	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R177	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R180	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R181	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R182	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R183	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R184	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R185	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R186	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R187	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R188	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R189	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R190	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R191	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R192	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R193	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R194	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R195	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R196	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R197	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R198	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R200	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R201	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R202	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R203	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R204	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R205	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R206	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R207	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R208	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R209	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R220	1-216-019-00	METAL GLAZE	56	5%	1/10W	
R230	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R231	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R271	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R272	1-249-441-11	CARBON	100K	5%	1/4W	
R273	1-249-441-11	CARBON	100K	5%	1/4W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	
RV002	1-230-870-11	RES, ADJ, METAL GLAZE	10K
RV003	1-230-870-11	RES, ADJ, METAL GLAZE	10K

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*A-7061-022-A VC-36 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description				Remark
C101	1-124-258-00	ELECT	3.3MF	20%	50V	
C102	1-124-258-00	ELECT	3.3MF	20%	50V	
C103	1-124-944-11	ELECT	82MF	20%	25V	
C104	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C106	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C107	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C108	1-124-224-00	ELECT	47MF	20%	6.3V	
C109	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C110	1-162-638-11	CERAMIC CHIP	1MF		16V	
C111	1-124-247-00	ELECT	10MF	20%	25V	
C112	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C113	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C114	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C115	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C116	1-124-247-00	ELECT	10MF	20%	35V	
C117	1-124-247-00	ELECT	10MF	20%	35V	
C118	1-124-258-00	ELECT	3.3MF	20%	35V	
C120	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C127	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	
C128	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V	
C131	1-124-224-00	ELECT	47MF	20%	6.3V	
C132	1-163-081-00	CERAMIC CHIP	0.22MF		25V	
C133	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C134	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C135	1-124-638-11	ELECT	22MF	20%	6.3V	
C138	1-124-638-11	ELECT	22MF	20%	6.3V	
C151	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C152	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C153	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C154	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C155	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C156	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C157	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C158	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C163	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C164	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C165	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C166	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C167	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C168	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C169	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C170	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C171	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C172	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C173	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C174	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C181	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V	
C182	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C183	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C301	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C302	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C303	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C304	1-124-638-11	ELECT	22MF	20%	6.3V	
C305	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C307	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C308	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C309	1-163-107-00	CERAMIC CHIP	39PF	5%	50V	
C310	1-163-107-00	CERAMIC CHIP	39PF	5%	50V	
C311	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C312	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C380	1-135-091-00	TANTAL. CHIP	1MF	20%	16V	
C381	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C382	1-124-287-00	ELECT	10MF	20%	10V	
C383	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C384	1-123-661-00	ELECT	100MF	20%	6.3V	

CONNECTOR

Ref.No	Part No.	Description
CN101	1-566-539-11	CONNECTOR, FPC (NON ZIF) 7P
CN102	*1-564-015-00	PIN, CONNECTOR 5P
CN103	1-566-541-11	CONNECTOR, FPC (NON ZIF) 9P

DIODE

Ref.No	Part No.	Description	
D101	8-719-100-05	DIODE	1S2837
D102	8-719-100-03	DIODE	1S2835
D103	8-719-100-05	DIODE	1S2837
D104	8-719-100-05	DIODE	1S2837
D105	8-719-100-03	DIODE	1S2835
D106	8-719-100-03	DIODE	1S2835

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark
D131	8-719-100-03	DIODE 1S2835	
D132	8-719-100-05	DIODE 1S2837	
D133	8-719-100-05	DIODE 1S2837	

IC

Ref.No	Part No.	Description	Remark
IC101※	8-750-010-64	IC IU022AK-10A (CCD IMAGER)	
IC102	8-752-324-14	IC CXD1141M	
IC103	8-759-103-03	IC UPD6107G	
IC104	8-759-100-95	IC UPC324G2	
IC105	8-759-103-25	IC UPD4053BG	
IC301	8-752-032-48	IC CXA1157M	

COIL

Ref.No	Part No.	Description	Remark
L101	1-408-978-21	INDUCTOR 47UH	
L102	1-407-169-XX	INDUCTOR 100UH	
L151	1-408-960-21	INDUCTOR 1.5UH	
L152	1-408-960-21	INDUCTOR 1.5UH	
L153	1-408-960-21	INDUCTOR 1.5UH	
L154	1-410-337-11	INDUCTOR 1UH	
L155	1-410-371-21	INDUCTOR CHIP 1.5UH	
L301	1-408-978-21	INDUCTOR 47UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q101	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q102	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q103	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q104	8-729-105-53	TRANSISTOR 2SK300	
Q105	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q106	8-729-100-76	TRANSISTOR 2SA812	
Q107	8-729-101-07	TRANSISTOR 2SB798	
Q108	8-729-103-72	TRANSISTOR 2SD1005	
Q110	8-729-901-04	TRANSISTOR DTC114EK	
Q121	8-729-100-76	TRANSISTOR 2SA812	
Q132	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q133	8-729-100-76	TRANSISTOR 2SA812	
Q136	8-729-100-76	TRANSISTOR 2SA812	
Q137	8-729-100-76	TRANSISTOR 2SA812	
Q138	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q139	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q143	8-729-901-01	TRANSISTOR DTC144EK	
Q144	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q301	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q302	8-729-100-76	TRANSISTOR 2SA812	
Q303	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q304	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q305	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q306	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q307	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q308	8-729-100-76	TRANSISTOR 2SA812	
Q380	8-729-100-76	TRANSISTOR 2SA812	
Q381	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q382	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q383	8-729-100-76	TRANSISTOR 2SA812	
Q384	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q386	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q387	8-729-100-67	TRANSISTOR 2SC1623-L7	

RESISTOR

Ref.No	Part No.	Description	Remark
R101	1-216-107-00	METAL GLAZE 270K 5% 1/10W	
R102	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R103	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R104	1-216-748-11	METAL GLAZE 39K 5% 1/10W	
R105	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R106	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R107	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R108	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R109	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R110	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R111	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R112	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R113	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R114	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R115	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R116	1-216-154-00	METAL GLAZE 15 5% 1/8W	
R117	1-216-154-00	METAL GLAZE 15 5% 1/8W	
R119	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R120	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R121	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R122	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R123	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R124	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R125	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R126	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R128	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R132	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R135	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R136	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R137	1-216-107-00	METAL GLAZE 270K 5% 1/10W	
R139	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R140	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R141	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R142	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R143	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R145	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R146	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R147	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R148	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R149	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R150	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R151	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R152	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R153	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R154	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R155	1-216-117-00	METAL GLAZE 680K 5% 1/10W	
R156	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R157	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	

The IC101 and IC002 have not been mounted on the already mounted VC-36 board and DT-62 board respectively. Be sure to read "Precautions for Replacement of CCD Imager" on page 100. When changing the mounted VC-36 board and CCD Imager.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R158	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R161	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R162	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R163	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R164	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R172	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R173	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R175	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R176	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R177	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R178	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R192	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R194	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R301	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R302	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R303	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R304	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R305	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R306	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R307	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R308	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R309	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R310	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R311	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R312	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R313	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R314	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R315	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R317	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R318	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R319	1-216-336-00	METAL GLAZE	47K	±1%	1/10W	
R320	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R321	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R322	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R323	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R324	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R325	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R326	1-216-334-00	METAL GLAZE	22K	±1%	1/10W	
R327	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R328	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R329	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R330	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R331	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R332	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R333	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R380	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R381	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R382	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R383	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R384	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R385	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R386	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R388	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R389	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R390	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R391	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R392	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R393	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV101	1-230-498-11	RES, ADJ, METAL GLAZE 47K	
RV301	1-230-497-11	RES, ADJ, METAL GLAZE 22K	

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*A-7061-023-A VC-37 BOARD, COMPLETE
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A-7068-082-A DT-62 BOARD, COMPLETE (HIC)

A-7068-107-A CP-21 BOARD, COMPLETE (HIC)

CAPACITOR

Ref.No	Part No.	Description				Remark
C201	1-124-222-00	ELECT	22MF	20%	6.3V	
C202	1-124-236-00	ELECT	47MF	20%	10V	
C203	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C204	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C205	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C206	1-163-111-00	CERAMIC CHIP	56PF	5%	50V	
C207	1-163-111-00	CERAMIC CHIP	56PF	5%	50V	
C208	1-163-089-00	CERAMIC CHIP	6PF	0.5PF	50V	
C209	1-163-093-00	CERAMIC CHIP	10PF	5%	50V	
C210	1-124-257-00	ELECT	2.2MF	20%	50V	
C211	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C212	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C213	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C215	1-162-638-11	CERAMIC CHIP	1MF		16V	
C216	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C240	1-124-224-00	ELECT	47MF	20%	6.3V	
C256	1-124-224-00	ELECT	47MF	20%	6.3V	
C257	1-124-462-00	ELECT	10MF	20%	6.3V	
C258	1-163-059-00	CERAMIC CHIP	0.01MF	10%	50V	
C259	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C260	1-124-462-00	ELECT	10MF	20%	6.3V	
C261	1-124-462-00	ELECT	10MF	20%	6.3V	
C262	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C263	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C264	1-124-224-00	ELECT	47MF	20%	6.3V	
C265	1-135-091-00	TANTAL. CHIP	1MF	20%	16V	
C267	1-135-091-00	TANTAL. CHIP	1MF	20%	16V	
C268	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C269	1-163-081-00	CERAMIC CHIP	0.22MF		25V	
C270	1-135-091-00	TANTAL. CHIP	1MF	20%	16V	
C271	1-135-091-00	TANTAL. CHIP	1MF	20%	16V	
C272	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C273	1-162-638-11	CERAMIC CHIP	1MF		16V	
C274	1-162-638-11	CERAMIC CHIP	1MF		16V	
C275	1-162-638-11	CERAMIC CHIP	1MF		16V	

When indicating parts by reference number, please include the board name.

VC-37

Ref.No	Part No.	Description		Remark
C276	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C277	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C278	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C279	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C280	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C281	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C282	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C283	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C341	1-124-566-11	ELECT 120MF	20%	6.3V
C342	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C343	1-162-638-11	CERAMIC CHIP 1MF		16V
C344	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C346	1-124-222-00	ELECT 22MF	20%	6.3V
C347	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C348	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C349	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C350	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C351	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C352	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C354	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C355	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C356	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C357	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C358	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C359	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C360	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C361	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V
C362	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C370	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C371	1-163-033-00	CERAMIC CHIP 0.022MF		50V

CONNECTOR

Ref.No	Part No.	Description
CN201	*1-564-013-00	PIN, CONNECTOR 3P

TRIMMER

Ref.No	Part No.	Description
CT201	1-141-331-11	CAP, VAR, TRIMMER (CHIP) (30PF)

DIODE

Ref.No	Part No.	Description
D001	8-719-104-26	DIODE 1S2837-T1
D251	8-719-100-05	DIODE 1S2837
D252	8-719-100-05	DIODE 1S2837

DELAY LINE

Ref.No	Part No.	Description
DL341	1-415-448-21	DELAY LINE

IC

Ref.No	Part No.	Description
IC201	8-752-321-16	IC CXD1030M
IC251	8-752-031-96	IC CXA1070Q-Z
IC352	8-752-031-97	IC CXA1072Q-Z

COIL

Ref.No	Part No.	Description	Remark
L201	1-408-970-21	INDUCTOR 10UH	
L202	1-410-389-11	INDUCTOR CHIP 47UH	
L203	1-408-970-21	INDUCTOR 10UH	
L341	1-408-960-21	INDUCTOR 1.5UH	
L342	1-410-393-11	INDUCTOR CHIP 100UH	

TRANSISTOR

Ref.No	Part No.	Description
Q201	8-729-175-72	TRANSISTOR 2SC2757-33
Q202	8-729-175-73	TRANSISTOR 2SC2757
Q258	8-729-100-67	TRANSISTOR 2SC1623-L7
Q259	8-729-100-76	TRANSISTOR 2SA812
Q260	8-729-100-76	TRANSISTOR 2SA812
Q261	8-729-100-76	TRANSISTOR 2SA812
Q263	8-729-100-67	TRANSISTOR 2SC1623-L7
Q342	8-729-100-67	TRANSISTOR 2SC1623-L7
Q348	8-729-100-67	TRANSISTOR 2SC1623-L7
Q349	8-729-100-67	TRANSISTOR 2SC1623-L7
Q350	8-729-100-67	TRANSISTOR 2SC1623-L7
Q351	8-729-100-67	TRANSISTOR 2SC1623-L7
Q352	8-729-100-76	TRANSISTOR 2SA812
Q353	8-729-100-76	TRANSISTOR 2SA812

RESISTOR

Ref.No	Part No.	Description		
R202	1-216-295-00	METAL GLAZE 0	5%	1/10W
R204	1-216-041-00	METAL GLAZE 470	5%	1/10W
R205	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R206	1-216-039-00	METAL GLAZE 390	5%	1/10W
R207	1-216-039-00	METAL GLAZE 390	5%	1/10W
R208	1-216-067-00	METAL GLAZE 5.6K	5%	1/10W
R209	1-216-067-00	METAL GLAZE 5.6K	5%	1/10W
R210	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W
R212	1-216-033-00	METAL GLAZE 220	5%	1/10W
R214	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W
R216	1-216-295-00	METAL GLAZE 0	5%	1/10W
R259	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R260	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R265	1-216-073-00	METAL GLAZE 10K	5%	1/10W
R266	1-216-073-00	METAL GLAZE 10K	5%	1/10W
R267	1-216-047-00	METAL GLAZE 820	5%	1/10W
R268	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R269	1-216-075-00	METAL GLAZE 12K	5%	1/10W
R270	1-216-083-00	METAL GLAZE 27K	5%	1/10W
R271	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R272	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R273	1-216-073-00	METAL GLAZE 10K	5%	1/10W
R274	1-216-113-00	METAL GLAZE 470K	5%	1/10W
R275	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R276	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R277	1-216-077-00	METAL GLAZE 15K	5%	1/10W
R278	1-216-085-00	METAL GLAZE 33K	5%	1/10W
R279	1-216-097-00	METAL GLAZE 100K	5%	1/10W
R280	1-216-097-00	METAL GLAZE 100K	5%	1/10W
R281	1-216-081-00	METAL GLAZE 22K	5%	1/10W
R282	1-216-748-11	METAL GLAZE 39K	5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R283	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R284	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R285	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R286	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R287	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R289	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R290	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R291	1-216-080-00	METAL GLAZE	20K	5%	1/10W	
R292	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R293	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R296	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R297	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R298	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R299	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R341	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R342	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R343	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R344	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R345	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R346	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R347	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R348	1-216-134-00	METAL GLAZE	2.2	5%	1/8W	
R352	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R353	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R354	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R355	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R356	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R357	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R358	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R359	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R360	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R363	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R364	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R365	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R366	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R367	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R371	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R372	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R373	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R374	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R375	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R376	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R377	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R378	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

VARIABLE RESISTOR

RV252	1-237-325-11	RES, ADJ, METAL GLAZE 4.7K	
RV253	1-237-328-11	RES, ADJ, METAL GLAZE 47K	
RV254	1-237-143-11	RES, ADJ, METAL GLAZE 10K	
RV255	1-237-119-11	RES, ADJ, METAL GLAZE 22K	
RV341	1-237-328-11	RES, ADJ, METAL GLAZE 47K	
RV342	1-237-328-11	RES, ADJ, METAL GLAZE 47K	
RV343	1-237-328-11	RES, ADJ, METAL GLAZE 47K	

Ref.No	Part No.	Description	Remark
RV344	1-237-328-11	RES, ADJ, METAL GLAZE 47K	
RV345	1-237-328-11	RES, ADJ, METAL GLAZE 47K	
RV347	1-237-119-11	RES, ADJ, METAL GLAZE 22K	

CRYSTAL

X201	1-567-933-21	VIBRATOR, CRYSTAL	

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*A-7061-025-A CG-2 BOARD, COMPLETE
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CAPACITOR

C801	1-124-222-00	ELECT	22MF	20%	6.3V
C802	1-124-462-00	ELECT	10MF	20%	6.3V
C803	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C804	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C807	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C808	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C809	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C810	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C811	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C812	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C815	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C816	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C817	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C821	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C822	1-162-638-11	CERAMIC CHIP	1MF		16V
C823	1-162-638-11	CERAMIC CHIP	1MF		16V
C850	1-163-339-91	CERAMIC CHIP	0.0015MF	5%	50V

CONNECTOR

CN802	*1-564-012-00	PIN, CONNECTOR 2P

TRIMMER

CT801	1-141-331-11	CAP, VAR, TRIMMER (CHIP) (30PF)

DIODE

D801	8-719-100-05	DIODE 1S2837
D802	8-719-100-05	DIODE 1S2837
D803	8-719-100-05	DIODE 1S2837
D805	8-719-100-03	DIODE 1S2835
D806	8-719-100-03	DIODE 1S2835
D807	8-719-100-03	DIODE 1S2835

IC

IC801	8-759-009-54	IC MC14543BF
IC802	8-759-106-63	IC UPD74HC02G
IC803	8-759-107-89	IC UPD6105G-102
IC804	8-759-106-89	IC UPD74HC157G
IC805	8-759-106-96	IC UPD74HC174G
IC806	8-759-107-89	IC UPD6105G-102
IC807	8-759-106-96	IC UPD74HC174G

When indicating parts by reference number, please include the board name.

CG-2 AW-10

Ref.No	Part No.	Description	Remark
		COIL	
L801	1-408-970-21	INDUCTOR 10UH	
L802	1-408-979-21	INDUCTOR 56UH	
		TRANSISTOR	
Q802	8-729-100-75	TRANSISTOR 2SA812-M5	
Q803	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q804	8-729-100-75	TRANSISTOR 2SA812-M5	
Q805	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q806	8-729-900-53	TRANSISTOR DTC114EK	
Q807	8-729-100-75	TRANSISTOR 2SA812-M7	
		RESISTOR	
R801	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R802	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R803	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R804	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R805	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R807	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R808	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R809	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R810	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R811	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R812	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R813	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R814	1-216-111-00	METAL GLAZE 390K 5% 1/10W	
R815	1-216-111-00	METAL GLAZE 390K 5% 1/10W	
R816	1-216-111-00	METAL GLAZE 390K 5% 1/10W	
R817	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R818	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R819	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R820	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R821	1-216-111-00	METAL GLAZE 390K 5% 1/10W	
R823	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R825	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R826	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R829	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R831	1-216-111-00	METAL GLAZE 390K 5% 1/10W	
R832	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R833	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R834	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R835	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R836	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R838	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R839	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R841	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
		VARIABLE RESISTOR	
RV801	1-230-226-00	RES, VAR, CARBON 10K (IRIS OPEN/CLOSE)	
RV802	1-237-324-11	RES, ADJ, METAL GLAZE 2.2K	

Ref.No	Part No.	Description	Remark
		SWITCH	
S801	1-553-977-00	SWITCH, SLIDE (FOCUS MAN/AUTO)	
S802	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (FOCUS PUSH AUTO)	
S803	1-554-945-12	SWITCH, SLIDE (WHITE BALANCE)	
S804	1-571-361-11	SWITCH, ROTARY (SHUTTER)	
S805	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (TITLE SUB)	
S806	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (DATE)	
S807	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (TIME)	
S808	1-570-909-21	SWITCH, TACTIL(REFLOW TYPE)(FADER/WIPER)	
S809	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)(REC REVIEW)	
S810	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)(TITLE MAIN)	

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Ref.No	Part No.	Description	Remark
	*A-7061-026-A	AW-10 BOARD, COMPLETE **********************	
	3-713-724-01	HOLDER, AS SENSOR	
		CAPACITOR	
C501	1-130-467-00	MYLAR 470PF 5% 50V	
C502	1-130-481-00	MYLAR 0.0068MF 5% 50V	
C503	1-124-462-00	ELECT 10MF 20% 6.3V	
C504	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C505	1-124-462-00	ELECT 10MF 20% 6.3V	
C506	1-162-638-11	CERAMIC CHIP 1MF 16V	
C507	1-163-104-00	CERAMIC CHIP 30PF 5% 50V	
C508	1-163-104-00	CERAMIC CHIP 30PF 5% 50V	
C509	1-124-224-00	ELECT 47MF 20% 6.3V	
C510	1-124-224-00	ELECT 47MF 20% 6.3V	
C511	1-163-013-00	CERAMIC CHIP 0.0022MF 10% 50V	
C514	1-163-013-00	CERAMIC CHIP 0.0022MF 10% 50V	
C515	1-163-013-00	CERAMIC CHIP 0.0022MF 10% 50V	
		CONNECTOR	
CN501	*1-564-016-00	PIN, CONNECTOR 6P	
		DIODE	
D501	8-719-100-05	DIODE 1S2837	
		IC	
IC501	8-759-939-68	IC TL062ACPS	
IC502	8-759-100-93	IC UPC393G2	
IC503	8-759-106-23	IC UPD4066BG	
IC504	8-759-012-75	IC MC146805F2FPSC82533F	
		COIL	
L501	1-408-960-21	INDUCTOR 1.5UH	
		TRANSISTOR	
Q501	8-729-903-30	TRANSISTOR DTC144TK	
Q502	8-729-903-30	TRANSISTOR DTC144TK	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
Q503	8-729-904-20	TRANSISTOR FMA2				
Q504	8-729-904-20	TRANSISTOR FMA2				
Q505	8-729-901-06	TRANSISTOR DTA144EK				
Q506	8-729-901-01	TRANSISTOR DTC144EK				
Q507	8-729-904-07	TRANSISTOR FMG2				
Q508	8-729-904-07	TRANSISTOR FMG2				
		RESISTOR				
R501	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R502	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R503	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R504	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R505	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R506	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R507	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R508	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R509	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R510	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R511	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R512	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R513	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R514	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R515	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R516	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R517	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R518	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R519	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R520	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R521	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R522	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R523	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R524	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R525	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R526	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R527	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R528	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R529	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R530	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R531	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R532	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
		VARIABLE RESISTOR				
RV501	1-237-119-11	RES, ADJ, METAL GLAZE 22K				
		BALANCE SENSOR				
SB501	1-807-684-11	SENSOR, WHITE BALANCE				
		CRYSTAL				
X501	1-567-192-11	OSCILLATOR, CERAMIC				

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Ref.No	Part No.	Description				Remark
	*A-7061-027-A	ZM-6 BOARD, COMPLETE *********************				
		CAPACITOR				
C901	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C902	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C903	1-124-236-00	ELECT	47MF	20%	16V	
C904	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C905	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C931	1-162-638-11	CERAMIC CHIP	1MF		16V	
C932	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C933	1-163-033-00	CERAMIC CHIP	0.022MF		50V	
C934	1-124-222-00	ELECT	22MF	20%	6.3V	
		CONNECTOR				
CN901	*1-564-013-00	PIN, CONNECTOR 3P				
CN902	*1-564-015-00	PIN, CONNECTOR 5P				
CN903	*1-564-012-00	PIN, CONNECTOR 2P				
CN904	*1-564-018-51	PIN, CONNECTOR 8P				
CN905	*1-564-002-00	PIN, CONNECTOR 3P				
CN906	*1-564-001-81	PIN, CONNECTOR 2P				
CN907	*1-564-004-00	PIN, CONNECTOR 5P				
		DIODE				
D931	8-719-100-03	DIODE 1S2835				
		FUSE				
F901 ⚠	1-532-955-11	FUSE, MICRO				
		IC				
IC901	8-759-100-94	IC UPC358G2				
IC931	8-759-701-34	IC NJM3414M				
IC932	8-759-100-94	IC UPC358G2				
		COIL				
L901	1-410-492-11	INDUCTOR	680UH			
		TRANSISTOR				
Q901	8-729-901-06	TRANSISTOR DTA144EK				
Q902	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q903	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q904	8-729-199-92	TRANSISTOR 2SD999				
Q905	8-729-101-07	TRANSISTOR 2SB804				
Q906	8-729-101-07	TRANSISTOR 2SB804				
Q907	8-729-199-92	TRANSISTOR 2SD999				
Q908	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q909	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q910	8-729-901-06	TRANSISTOR DTA144EK				
		RESISTOR				
R901	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R902	1-216-081-00	METAL GLAZE	22K	5%	1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

ZM-6 SK-22

Ref.No	Part No.	Description	Remark
R903	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R904	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R905	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R906	1-216-058-00	METAL GLAZE 2.4K 5% 1/10W	
R907	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R908	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R909	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R910	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R911	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R912	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R913	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R914	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R915	1-216-058-00	METAL GLAZE 2.4K 5% 1/10W	
R916	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R917	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R918	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R919	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R920	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R931	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R933	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R934	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R935	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R936	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R937	1-216-021-00	METAL GLAZE 68 5% 1/10W	
R938	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R939	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R940	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R941	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R942	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R943	1-216-089-00	METAL GLAZE 47K 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV931	1-237-325-11	RES, ADJ, METAL GLAZE 4.7K	
RV932	1-237-119-11	RES, ADJ, METAL GLAZE 22K	

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*A-7061-029-A SK-22 BOARD, COMPLETE
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*3-712-579-01 HOLDER, LCD

CAPACITOR

Ref.No	Part No.	Description	Remark
C301	1-135-096-21	TANTAL. CHIP 4.7MF 20% 10V	
C303	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C304	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C305	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C306	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C307	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C308	1-163-077-00	CERAMIC CHIP 0.1MF 50V	

DIODE

Ref.No	Part No.	Description	Remark
D301	8-719-100-03	DIODE 1S2835	
D302	8-719-801-45	DIODE 1SS187	
D303	8-719-918-67	DIODE GL-1EG102 (VTR POWER)	
D304	8-719-106-08	DIODE RD6.2M-B2	

IC

Ref.No	Part No.	Description	Remark
IC301	8-759-111-52	IC UPD7502G-376-12	
IC302	8-759-106-26	IC UPD4069UBG	

DISPLAY PANEL

Ref.No	Part No.	Description	Remark
ND301	1-807-613-21	DISPLAY PANEL, LIQUID CRYSTAL	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q301	8-729-901-01	TRANSISTOR DTC144EK	
Q302	8-729-901-01	TRANSISTOR DTC144EK	
Q303	8-729-901-01	TRANSISTOR DTC144EK	

RESISTOR

Ref.No	Part No.	Description	Remark
R601	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R602	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R603	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R604	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R605	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R606	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R607	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R608	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R609	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R610	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R611	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R612	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R613	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R614	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R615	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R616	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R618	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R619	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R620	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R621	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R622	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R623	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R624	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R625	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R626	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R627	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R628	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R629	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R630	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R631	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R632	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R634	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R635	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R636	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R637	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R638	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R639	1-216-295-00	METAL GLAZE 0 5% 1/10W	
		SWITCH	
S301	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (PAUSE II)	
S302	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (REW◀◀)	
S303	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (FF▶▶)	
S304	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (STOP ■)	
S305	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (RESET)	
S306	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (MEMORY)	
S307	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (INSERT)	
S308	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (PLAY ▶)	
S309	1-553-977-00	SWITCH, SLIDE (COUNTER)	
S310	1-553-977-00	SWITCH, SLIDE (EDIT)	
S311	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (VTR POWER)	
S312	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (FRAM II▶)	
S313	1-554-364-00	SWITCH, SLIDE (EJECT ⏏)	
S314	1-554-364-00	SWITCH, SLIDE (REC ●)	
		CRYSTAL	
X301	1-527-532-00	OSCILLATOR, CERAMIC (400KHz)	

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*A-7061-030-A CC-13 BOARD, COMPLETE
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		CAPACITOR	
C901	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C902	1-124-967-11	ELECT 10MF 20% 10V	
C903	1-124-967-11	ELECT 10MF 20% 10V	
C904	1-124-224-00	ELECT 47MF 20% 6.3V	
C905	1-124-462-00	ELECT 10MF 20% 10V	
C906	1-124-225-00	ELECT 100MF 20% 6.3V	
C907	1-124-222-00	ELECT 22MF 20% 6.3V	
C908	1-124-245-00	ELECT 4.7MF 20% 16V	
C909	1-124-462-00	ELECT 10MF 20% 10V	
C910	1-163-021-00	CERAMIC CHIP 0.01MF 50V	
C911	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C912	1-124-577-11	ELECT 82MF 20% 10V	
C913	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C914	1-127-491-00	ELECT(SOLID) 22MF 20% 10V	
C915	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C916	1-127-498-00	ELECT(SOLID) 15MF 20% 16V	
C917	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C918	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C919	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C920	1-124-257-00	ELECT 2.2MF 20% 50V	
C921	1-163-269-00	CERAMIC CHIP 560PF 5% 50V	
C922	1-163-018-00	CERAMIC CHIP 0.0056MF 10% 50V	
C923	1-127-496-00	ELECT(SOLID) 6.8MF 20% 16V	
C924	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C925	1-124-577-11	ELECT 82MF 20% 10V	
C926	1-127-496-00	ELECT(SOLID) 6.8MF 20% 16V	
C927	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	

Ref.No	Part No.	Description	Remark
C928	1-163-133-00	CERAMIC CHIP 470PF 10% 50V	
C929	1-127-498-00	ELECT(SOLID) 15MF 20% 16V	
C930	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C931	1-124-257-00	ELECT 2.2MF 20% 50V	
C932	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
		CONNECTOR	
CN901	*1-564-012-00	PIN, CONNECTOR 2P	
CN902	*1-564-012-61	PIN, CONNECTOR 2P	
CN903	*1-564-016-00	PIN, CONNECTOR 6P	
CN904	*1-564-002-00	PIN, CONNECTOR 3P	
CN906	*1-564-002-00	PIN, CONNECTOR 3P	
		DIODE	
D901	8-719-938-75	DIODE SB05-05CP	
D902	8-719-938-75	DIODE SB05-05CP	
D903	8-719-105-82	DIODE RD5.1M-B2	
D904	8-719-106-71	DIODE RD12M-B2	
		IC	
IC901	8-752-009-51	IC CX20095A	
IC902	8-759-937-36	IC TL1451ACNS	
		JACK	
J901	1-563-469-11	JACK, PIN (MINIATURE) 2P (ACCESSORY IN/OUT)	
		COIL	
L901	1-410-625-11	COIL, CHOKE 33UH	
L902	1-410-627-11	COIL, CHOKE 100UH	
L903	1-421-902-11	COIL, CHOKE 120UH	
L904	1-421-902-11	COIL, CHOKE 120UH	
L905	1-410-828-11	INDUCTOR 47UH	
L906	1-410-369-21	INDUCTOR CHIP 1UH	
L907	1-410-369-21	INDUCTOR CHIP 1UH	
		TRANSISTOR	
Q901	8-729-901-03	TRANSISTOR DTC144WK	
Q902	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q903	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q904	8-729-901-03	TRANSISTOR DTC144WK	
Q905	8-729-901-03	TRANSISTOR DTC144WK	
Q907	8-729-312-22	TRANSISTOR 2SA1122	
Q908	8-729-901-03	TRANSISTOR DTC144WK	
Q909	8-729-805-25	TRANSISTOR 2SB1121	
Q910	8-729-807-33	TRANSISTOR 2SB1123	
Q911	8-729-100-67	TRANSISTOR 2SC1623-L6	
Q912	8-729-901-00	TRANSISTOR DTC124EK	
		RESISTOR	
R901	1-216-015-00	METAL GLAZE 39 5% 1/10W	
R902	1-216-015-00	METAL GLAZE 39 5% 1/10W	
R903	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R904	1-216-083-00	METAL GLAZE 27K 5% 1/10W	

When indicating parts by reference number, please include the board name.

CC-13 VF-7

Ref.No	Part No.	Description	Remark
R905	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R906	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R907	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R908	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R911	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R912	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R913	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R914	1-216-021-00	METAL GLAZE 68 5% 1/10W	
R915	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R916	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R917	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R918	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R920	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R921	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R922	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R923	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R924	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R925	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R926	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R927	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R928	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R929	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R930	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R931	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R932	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R933	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R934	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R935	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R936	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R937	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R938	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R939	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R940	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R941	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R942	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R943	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R944	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R945	1-216-025-00	METAL GLAZE 100 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV901	1-237-354-11	RES, VAR, CARBON 470K (FRAM ADJ)	
RV902	1-237-354-11	RES, VAR, CARBON 470K (STILL ADJ)	
RV903	1-230-867-11	RES, ADJ, METAL GLAZE 1K	
RV904	1-230-866-11	RES, ADJ, METAL GLAZE 470	

SWITCH

Ref.No	Part No.	Description	Remark
S901	1-554-672-00	SWITCH, SLIDE (AUDIO MONITOR PCM/MIX/STD)	

TRANSFORMER

Ref.No	Part No.	Description	Remark
T901	1-449-242-11	TRANSFORMER, CONVERTER	

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Ref.No	Part No.	Description	Remark
	*A-7061-141-A	VF-7 BOARD, COMPLETE *********************	
	1-526-926-11	SOCKET ASSY, CRT	
	*3-662-075-00	COVER, CONTROL	
	*3-712-665-01	HOLDER, LED	

CAPACITOR

Ref.No	Part No.	Description	Remark
C701	1-124-638-11	ELECT 22MF 20% 6.3V	
C702	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C703	1-131-587-11	TANTALUM 0.68MF 5% 35V	
C704	1-124-224-00	ELECT 47MF 20% 6.3V	
C705	1-163-139-00	CERAMIC CHIP 820PF 10% 50V	
C706	1-162-638-11	CERAMIC CHIP 1MF 16V	
C707	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
C708	1-124-462-00	ELECT 10MF 20% 16V	
C709	1-163-209-00	CERAMIC CHIP 0.0015MF 5% 50V	
C710	1-163-115-00	CERAMIC CHIP 82PF 5% 50V	
C711	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C712	1-163-125-00	CERAMIC CHIP 220PF 10% 50V	
C713	1-124-442-00	ELECT 330MF 20% 6.3V	
C714	1-124-604-00	ELECT 330MF 20% 10V	
C715	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C716	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V	
C717	1-123-611-00	ELECT 1MF 20% 50V	
C718	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C719	1-163-013-00	CERAMIC CHIP 0.0022MF 10% 50V	
C720	1-163-189-00	CERAMIC CHIP 220PF 10% 50V	
C721 ⚠	.1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C722 ⚠	.1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C723	1-124-258-00	ELECT 3.3MF 20% 50V	
C724	1-162-697-11	CERAMIC 0.001MF 1KV	
C725	1-102-038-00	CERAMIC 0.001MF 500V	
C726	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C727	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN702	*1-564-001-11	PIN, CONNECTOR 2P	
CN703	*1-564-001-11	PIN, CONNECTOR 2P	

DIODE

Ref.No	Part No.	Description	Remark
D701	8-719-400-20	DIODE MA152WA	
D702	8-719-801-48	DIODE 1SS193	
D703	8-719-801-45	DIODE 1SS187	
D704	8-719-800-24	DIODE TLR147	

IC

Ref.No	Part No.	Description	Remark
IC701	8-759-403-49	IC AN2510S	

COIL

Ref.No	Part No.	Description	Remark
L701 ⚠	.1-408-980-21	INDUCTOR 68UH	
L702 ⚠	.1-459-683-11	COIL, FERRITE (HLC)	
L703	1-408-974-21	INDUCTOR 22UH	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

When indicating parts by reference number, please include the board name.

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q701	8-729-100-66	TRANSISTOR 2SC1623	
Q702	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q703	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q704	8-729-106-68	TRANSISTOR 2SD1615-GP	

RESISTOR

Ref.No	Part No.	Description	Remark
R701	1-216-306-11	METAL GLAZE 3.9 5% 1/10W	
R702	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R703	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R704	1-216-671-11	METAL CHIP 6.8K 0.50% 1/10W	
R705	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R706 ⚠	1-216-017-00	METAL GLAZE 47 5% 1/10W	
R707	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R708	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R709	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R710	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R711	1-216-228-00	METAL GLAZE 18K 5% 1/8W	
R712	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R713	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R714 ⚠	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R715	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R716 ⚠	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R717	1-216-222-00	METAL GLAZE 10K 5% 1/8W	
R718 ⚠	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R720	1-216-131-11	METAL GLAZE 2.7M 5% 1/10W	
R721	1-216-129-00	METAL GLAZE 2.2M 5% 1/10W	
R722	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R723	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R726	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R740	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R741	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R742	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R743	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R744	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R745	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R746	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R747	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R748	1-216-295-00	METAL GLAZE 0 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-226-701-00	RES, ADJ, SOLID 220	
RV702	1-230-521-11	RES, ADJ, SOLID 2.2K	
RV703	1-230-524-11	RES, ADJ, SOLID 22K	
RV704	1-230-041-00	RES, ADJ, METAL GLAZE 2.2M	
RV705	1-230-041-00	RES, ADJ, METAL GLAZE 2.2M	

TRANSFORMER

Ref.No	Part No.	Description	Remark
T701 ⚠	1-439-394-11	TRANSFORMER ASSY, FLYBACK (HVU-3D8)	

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*A-7051-144-A AF-43 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description	Remark
C011	1-131-379-00	TANTALUM 22MF 20% 6.3V	
C012	- - -	CERAMIC CHIP 0.056MF	
C013	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
C014	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C015	1-131-379-00	TANTALUM 22MF 20% 10V	
C016	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C017	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C031	1-124-472-11	ELECT 470MF 20% 10V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN001	* - - -	PIN, CONNECTOR 2P	
CN002	* - - -	PIN, CONNECTOR 2P	
CN003	* - - -	PIN, CONNECTOR 2P	

DIODE

Ref.No	Part No.	Description	Remark
D011	8-719-400-37	DIODE MA3047-H	

IC

Ref.No	Part No.	Description	Remark
IC011	- - -	IC AN6954S	
IC012	8-759-908-81	IC MB3763PF	
IC013	- - -	IC AN8005	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q011	8-729-497-32	TRANSISTOR 2SD973-Q	
Q021	8-729-400-60	TRANSISTOR 2SD874A-Q	
Q031	8-729-400-58	TRANSISTOR 2SB766A-R	
Q032	- - -	TRANSISTOR 2SB710	
Q041	1-806-832-11	TRANSISTOR 2SD601	

RESISTOR

Ref.No	Part No.	Description	Remark
R011	1-216-052-00	METAL GLAZE 1.3K 5% 1/10W	
R012	1-216-100-00	METAL GLAZE 130K 5% 1/10W	
R013	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R014	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R015	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R016	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R017	1-216-180-00	METAL GLAZE 180 5% 1/8W	
R021	1-214-811-11	METAL 6.2 1% 1/2W	
R022	- - -	RESISTOR, CHIP 9.1	
R031	1-249-480-11	CARBON 3.3 5% 1/2W F	
R032	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R033	1-216-264-00	METAL GLAZE 560K 5% 1/8W	
R034	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R035	1-216-210-00	METAL GLAZE 3.3K 5% 1/8W	
R041	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R042	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

AF-43 **FC-15**

Ref.No	Part No.	Description	Remark
		VARIABLE RESISTOR	
VR011	- - -	RES, ADJ 10K	
VR012	- - -	RES, ADJ 10K	
		CONNECTOR	
W001	- - -	POWER, CONNECTOR	
W002	- - -	FLAT CABLE	

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*A-7061-150-A FC-15 BOARD, COMPLETE
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Ref.No	Part No.	Description	Remark
		CAPACITOR	
C701	1-124-222-00	ELECT 22MF 20% 6.3V	
C702	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C703	1-124-222-00	ELECT 22MF 20% 6.3V	
C704	1-163-093-00	CERAMIC CHIP 10PF 5% 50V	
C705	1-162-638-11	CERAMIC CHIP 1MF 16V	
C706	1-124-257-00	ELECT 2.2MF 20% 35V	
C707	1-124-222-00	ELECT 22MF 20% 6.3V	
C708	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C709	1-124-257-00	ELECT 2.2MF 20% 35V	
C710	1-135-070-00	TANTAL. CHIP 0.1MF 20% 35V	
C711	1-124-258-00	ELECT 3.3MF 20% 25V	
C712	1-162-638-11	CERAMIC CHIP 1MF 16V	
C713	1-162-638-11	CERAMIC CHIP 1MF 16V	
C714	1-162-638-11	CERAMIC CHIP 1MF 16V	
C715	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C716	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C717	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C718	1-163-015-00	CERAMIC CHIP 0.0033MF 10% 50V	
C719	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C720	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C771	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C772	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
		CONNECTOR	
CN701	*1-564-012-00	PIN, CONNECTOR 2P	
CN702	*1-564-013-00	PIN, CONNECTOR 3P	
CN703	*1-564-017-00	PIN, CONNECTOR 7P	
CN704	*1-564-015-00	PIN, CONNECTOR 5P	
CN705	*1-564-014-71	PIN, CONNECTOR 4P	
		TRIMMER	
CT701	1-141-331-11	CAP, VAR, TRIMMER (CHIP) (30PF)	
		DIODE	
D701	8-719-100-05	DIODE 1S2837	
D702	8-719-100-05	DIODE 1S2837	
D703	8-719-100-05	DIODE 1S2837	
D704	8-719-100-05	DIODE 1S2837	
D705	8-719-100-05	DIODE 1S2837	
D706	8-719-920-80	DIODE GL-1HY102 (INTERVAL REC)	
D707	8-719-918-67	DIODE GL-1EG102 (CAMERA POWER)	
D708 ⚠	8-719-938-72	DIODE SB01-05CP	
D709 ⚠	8-719-938-72	DIODE SB01-05CP	
D710	8-719-100-05	DIODE 1S2837	
		IC	
IC701	8-759-112-03	IC UPD7508G-769-00	
IC702	8-759-100-97	IC UPC339G2	
IC703	8-759-100-95	IC UPC324G2	
IC704	8-759-106-40	IC UPD4538BG	
		TRANSISTOR	
Q701	8-729-100-76	TRANSISTOR 2SA812	
Q702	8-729-900-98	TRANSISTOR DTC143TK	
Q703	8-729-900-98	TRANSISTOR DTC143TK	
Q704	8-729-901-01	TRANSISTOR DTC144EK	
Q705	8-729-901-01	TRANSISTOR DTC144EK	
Q706	8-729-100-76	TRANSISTOR 2SA812	
Q708	8-729-100-76	TRANSISTOR 2SA812	
Q709	8-729-901-03	TRANSISTOR DTC144WK	
Q710	8-729-100-76	TRANSISTOR 2SA812	
Q711	8-729-100-76	TRANSISTOR 2SA812	
Q712	8-729-900-99	TRANSISTOR DTA144WK	
Q713	8-729-900-98	TRANSISTOR DTC143TK	
Q714	8-729-100-76	TRANSISTOR 2SA812	
Q715	8-729-901-04	TRANSISTOR DTA144EK	
Q718	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q719	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q720	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q771	8-729-100-67	TRANSISTOR 2SC1623-L7	
		RESISTOR	
R672	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R701	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R702	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R703	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R704	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R705	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R706	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R707	1-216-748-11	METAL GLAZE 39K 5% 1/10W	
R708	1-216-095-00	METAL GLAZE 82K 5% 1/10W	
R709	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R710	1-216-109-00	METAL GLAZE 330K 5% 1/10W	
R711	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R712	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R713	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R714	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R716	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R717	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R718	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R719	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R720	1-216-097-00	METAL GLAZE 100K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R721	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R722	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R723	1-216-109-00	METAL GLAZE 330K 5% 1/10W	
R724	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R725	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R726	1-216-129-00	METAL GLAZE 2.2M 5% 1/10W	
R727	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R729	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R730	1-216-117-00	METAL GLAZE 680K 5% 1/10W	
R731	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R732	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R733	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R734	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R735	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R736	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R737	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R738	1-216-336-11	METAL GLAZE 47K 1% 1/10W	
R739	1-216-332-11	METAL GLAZE 11K 1% 1/10W	
R740	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R741	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R742	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R743	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R744	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R745	1-216-103-00	METAL GLAZE 180K 5% 1/10W	
R746	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R748	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R749	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R750	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R751	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R752	1-216-518-00	METAL GLAZE 2.2K 1% 1/10W	
R753	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R754	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R756	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R760	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R761	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R764	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R765	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R766	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R767	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R771	1-216-113-00	METAL GLAZE 470K 5% 1/10W	
R772	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R773	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-237-329-11	RES, ADJ, METAL GLAZE 100K	
RV702	1-237-329-11	RES, ADJ, METAL GLAZE 100K	
RV703	1-237-329-11	RES, ADJ, METAL GLAZE 100K	

SWITCH

Ref.No	Part No.	Description	Remark
S701	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (NEXT)	
S702	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (⊟)	
S703	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (⊞)	
S704	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (TITLE CLEAR)	
S705	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (INTERVAL EC)	
S706	1-554-364-00	SWITCH, SLIDE (CAMERA POWER)	

CRYSTAL

Ref.No	Part No.	Description	Remark
X701	1-527-997-00	VIBRATOR, CRYSTAL	

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*A-7070-024-A LD-1 BOARD, COMPLETE

DIODE

Ref.No	Part No.	Description	Remark
D901	8-719-928-54	DIODE GL-450S	

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A-7090-029-A MS-4 BOARD, COMPLETE

CAPACITOR

Ref.No	Part No.	Description	Remark
C901	1-163-038-00	CERAMIC CHIP 0.1MF 25V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN905	*1-564-671-31	PIN, CONNECTOR (HOOK TYPE)	

* * *

LS-9 BOARD

CONNECTOR

Ref.No	Part No.	Description	Remark
CN904	*1-564-671-11	PIN, CONNECTOR (HOOK TYPE)	

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*A-7070-580-A DR-45 BOARD, COMPLETE

Ref.No	Part No.	Description	Remark
	2-279-715-21	RIVET, NYLON	
	3-712-398-01	REINFORCEMENT (31)	

CAPACITOR

Ref.No	Part No.	Description	Remark
C501	1-123-611-00	ELECT 1MF 20% 50V	
C502	1-123-611-00	ELECT 1MF 20% 50V	
C503	1-124-255-00	ELECT 1MF 20% 50V	
C504	1-124-258-00	ELECT 3.3MF 20% 25V	
C505	1-124-255-00	ELECT 1MF 20% 50V	
C506	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V	
C507	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C508	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	
C509	1-126-099-11	ELECT 2.2MF 20% 35V	
C511	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C512	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C513	1-124-577-11	ELECT 82MF 20% 10V	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
C514	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C515	1-124-577-11	ELECT	82MF	20%	10V	
C516	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C517	1-124-462-00	ELECT	10MF	20%	16V	
C518	1-124-462-00	ELECT	10MF	20%	16V	
C519	1-124-462-00	ELECT	10MF	20%	16V	
C520	1-124-577-11	ELECT	82MF	20%	10V	
C521	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C522	1-124-596-11	ELECT	27MF	20%	16V	
C523	1-124-596-11	ELECT	27MF	20%	16V	
C524	1-124-596-11	ELECT	27MF	20%	16V	
C527	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	
C528	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V	

CONNECTOR

CN312	*1-564-012-00	PIN, CONNECTOR 2P
CN504	*1-564-014-71	PIN, CONNECTOR 4P

DIODE

D501	8-719-200-36	DIODE E10QS04
D502	8-719-200-36	DIODE E10QS04
D503	8-719-200-36	DIODE E10QS04

IC

IC501	8-759-202-45	IC CX20114
IC502	8-752-003-60	IC CX20036

COIL

L501	1-410-628-11	COIL, CHOKE 200UH
L502	1-410-628-11	COIL, CHOKE 200UH
L503	1-410-628-11	COIL, CHOKE 200UH

TRANSISTOR

Q501	8-729-100-76	TRANSISTOR 2SA812
Q502	8-729-901-01	TRANSISTOR DTC144EK
Q503	8-729-100-76	TRANSISTOR 2SA812
Q504	8-729-100-67	TRANSISTOR 2SC1623-L7
Q505	8-729-106-40	TRANSISTOR 2SB1114-ZK
Q506	8-729-106-40	TRANSISTOR 2SB1114-ZK
Q507	8-729-700-10	TRANSISTOR NJL7141E-S

RESISTOR

R501	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R502	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R503	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R504	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R505	1-216-047-00	METAL GLAZE	820	5%	1/10W
R506	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R507	1-216-025-00	METAL GLAZE	100	5%	1/10W
R508	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R509	1-216-041-00	METAL GLAZE	470	5%	1/10W
R510	1-216-089-00	METAL GLAZE	47K	5%	1/10W

Ref.No	Part No.	Description				Remark
R511	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R512	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R513	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R514	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R515	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R516	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R517	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R518	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R519	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R520	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R521	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R522	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R523	1-214-972-00	METAL	0.22	1%	1/4W	
R524	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R525	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R526	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R527	1-216-304-11	METAL GLAZE	3.3	5%	1/10W	
R528	1-216-304-11	METAL GLAZE	3.3	5%	1/10W	
R529	1-216-304-11	METAL GLAZE	3.3	5%	1/10W	
R530	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R534	1-216-295-00	METAL GLAZE	0	5%	1/10W	

CONNECTOR

W503	*1-558-803-11	WIRE, FLAT TYPE 19P

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*A-7070-581-A SC-9 BOARD, COMPLETE
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CAPACITOR

C383	1-124-236-00	ELECT	47MF	20%	10V
C384	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V

CONNECTOR

CN381	*1-564-014-51	PIN, CONNECTOR 4P

DIODE

D381	8-719-106-43	DIODE RD9.1M-B1
D382	8-719-106-43	DIODE RD9.1M-B1
D383	8-719-106-43	DIODE RD9.1M-B1
D384	8-719-106-43	DIODE RD9.1M-B1
D385	8-719-106-43	DIODE RD9.1M-B1
D386	8-719-106-43	DIODE RD9.1M-B1
D387	8-719-106-43	DIODE RD9.1M-B1
D388	8-719-106-43	DIODE RD9.1M-B1
D389	8-719-106-43	DIODE RD9.1M-B1

JACK

J381	1-537-131-11	JACK BOARD (VIDEO/RFU DC/AUDIO/AUDIO L/AUDIO R OUT)

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When indicating parts by reference number, please include the board name.

*A-7070-582-A RJ-3 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description	Remark
C951	1-163-021-00	CERAMIC CHIP 0.01MF	50V

DIODE

Ref.No	Part No.	Description	Remark
D951	8-719-106-71	DIODE RD12M-B2	
D952	8-719-106-71	DIODE RD12M-B2	
D953	8-719-106-71	DIODE RD12M-B2	

JACK

Ref.No	Part No.	Description	Remark
J951	1-562-589-11	SOCKET, DIN (SMALL TYPE) 5P (REMOTE)	

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*A-7070-583-A FU-62 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description	Remark
C431	1-123-321-00	ELECT 220MF 20%	16V
C432	1-126-103-11	ELECT 470MF 20%	16V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN431	*1-564-028-00	PIN, CONNECTOR 3P	
CN433	*1-564-002-00	PIN, CONNECTOR 3P	

FUSE

Ref.No	Part No.	Description	Remark
F431	⚠.1-532-741-11	FUSE, GLASS TUBE (125V/1.25A)	
F432	⚠.1-532-741-11	FUSE, GLASS TUBE (125V/1.25A)	
F433	⚠.1-532-741-11	FUSE, GLASS TUBE (125V/1.25A)	
F434	⚠.1-532-960-11	FUSE, MICRO (125V/1.25A)	

FUSE HOLDER

Ref.No	Part No.	Description	Remark
FH431	*1-533-146-00	HOLDER, FUSE	
FH432	*1-533-146-00	HOLDER, FUSE	
FH433	*1-533-146-00	HOLDER, FUSE	
FH434	*1-533-146-00	HOLDER, FUSE	
FH435	*1-533-146-00	HOLDER, FUSE	
FH436	*1-533-146-00	HOLDER, FUSE	

COIL

Ref.No	Part No.	Description	Remark
L431	1-410-337-11	INDUCTOR 1UH	
L432	1-410-337-11	INDUCTOR 1UH	
L433	1-410-337-11	INDUCTOR 1UH	
L434	1-410-337-11	INDUCTOR 1UH	
L435	1-410-337-11	INDUCTOR 1UH	

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*A-7070-584-A VR-17 BOARD, COMPLETE
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VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV200	1-237-969-11	RES, VAR, CARBON 10K/10K (REC LEVEL L/R)	

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*A-7070-585-A EM-2 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description	Remark
C401	1-163-013-00	CERAMIC CHIP 0.0022MF 10%	50V
C411	1-124-462-00	ELECT 10MF 20%	16V
C414	1-163-141-00	CERAMIC CHIP 0.001MF 10%	50V
C415	1-163-097-00	CERAMIC CHIP 15PF 5%	50V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN401	*1-564-001-11	PIN, CONNECTOR 2P	
CN402	*1-564-001-61	PIN, CONNECTOR 2P	
CN403	*1-564-001-81	PIN, CONNECTOR 2P	
CN404	*1-564-004-00	PIN, CONNECTOR 5P	
CN407	*1-564-003-00	PIN, CONNECTOR 4P	

COIL

Ref.No	Part No.	Description	Remark
L401	1-408-960-21	INDUCTOR 1.5UH	
L402	1-407-169-XX	INDUCTOR 100UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q412	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q415	8-729-901-01	TRANSISTOR DTC144EK	

RESISTOR

Ref.No	Part No.	Description	Remark
R411	1-216-748-11	METAL GLAZE 39K 5% 1/10W	
R412	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R413	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R414	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R417	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R418	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R420	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R421	1-216-033-00	METAL GLAZE 220 5% 1/10W	

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*A-7070-586-A PV-3 BOARD, COMPLETE
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CONNECTOR

Ref.No	Part No.	Description	Remark
CN197	*1-564-002-00	PIN, CONNECTOR 3P	

RESISTOR

Ref.No	Part No.	Description	Remark
R251	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R252	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	

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Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
		VARIABLE RESISTOR	
RV197	1-230-661-11	RES, VAR, CARBON 10K (PHONE LEVEL)	

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	*A-7070-587-A	PJ-19 BOARD, COMPLETE **********************	
		CONNECTOR	
CN061	*1-564-012-00	PIN, CONNECTOR 2P	
		DIODE	
D061	8-719-106-43	DIODE RD9.1M-B1	
D062	8-719-106-43	DIODE RD9.1M-B1	
D063	8-719-106-43	DIODE RD9.1M-B1	
D064	8-719-106-43	DIODE RD9.1M-B1	
D065	8-719-106-43	DIODE RD9.1M-B1	
D066	8-719-106-43	DIODE RD9.1M-B1	
D067	8-719-105-40	DIODE RD3.0M-B2	
		JACK	
J061	1-537-149-11	JACK BOARD 3P (VIDEO IN, AUDIO IN L/R)	

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	*A-7070-588-A	HJ-4 BOARD, COMPLETE *********************	
		DIODE	
D071	8-719-106-43	DIODE RD9.1M-B1	
D072	8-719-106-43	DIODE RD9.1M-B1	
D073	8-719-106-43	DIODE RD9.1M-B1	
D074	8-719-106-43	DIODE RD9.1M-B1	
D075	8-719-106-43	DIODE RD9.1M-B1	
D076	8-719-106-43	DIODE RD9.1M-B1	
D077	8-719-106-43	DIODE RD9.1M-B1	
D078	8-719-106-43	DIODE RD9.1M-B1	
		JACK	
J071	1-507-929-11	JACK (PHONES)	
J072	1-562-785-21	JACK (MIC)	
		COIL	
L071	1-410-369-11	INDUCTOR CHIP 1UH	
L072	1-410-369-11	INDUCTOR CHIP 1UH	
L073	1-410-369-11	INDUCTOR CHIP 1UH	
L074	1-410-369-11	INDUCTOR CHIP 1UH	
L075	1-410-369-11	INDUCTOR CHIP 1UH	

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Ref.No	Part No.	Description	Remark
	*A-7070-589-A	MS-11 BOARD, COMPLETE **********************	
		SWITCH	
S001	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (PUSH TO NARRATE)	

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	*A-7070-590-A	DL-22 BOARD, COMPLETE **********************	
	*3-674-372-00	HOLDER (A), LED	
		DIODE	
D199	8-719-800-32	DIODE TLR143 (AUDIO DUB)	
		SWITCH	
S199	1-554-364-00	SWITCH, SLIDE (AUDIO DUB)	

****

	*A-7070-591-A	ME-5 BOARD, COMPLETE *********************	
	*3-674-372-00	HOLDER (A), LED	
		CONNECTOR	
CN081	*1-564-003-00	PIN, CONNECTOR 4P	
		DIODE	
D081	8-719-936-94	DIODE GL-9EG44 (PCM)	
		METER	
ME001	1-520-499-11	METER, LEVEL (L)	
ME002	1-520-499-11	METER, LEVEL (R)	

****

	*A-7070-597-A	ZS-3 BOARD, COMPLETE *********************	
		CONNECTOR	
CN951	*1-564-002-00	PIN, CONNECTOR 3P	
CN952	*1-564-003-00	PIN, CONNECTOR 4P	
CN953	*1-564-003-00	PIN, CONNECTOR 4P	
CN954	*1-564-002-00	PIN, CONNECTOR 3P	

****

	*A-7070-598-A	LI-7 BOARD, COMPLETE *********************	
		JACK	
J961	1-550-104-21	HOLDER, BATTERY	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
	*A-7070-599-A	GS-4 BOARD, COMPLETE	

****

SWITCH

Ref.No	Part No.	Description	Remark
S921	1-570-689-11	SWITCH, KEY BOARD (START/STOP)	

****

MISCELLANEOUS

****

Ref.No	Part No.	Description	Remark
	A-7090-029-A	M-SW ASSY	
	X-3712-403-1	L-SW ASSY	
	⚠.1-464-897-11	CONVERTER UNIT, DC-DC	
	1-520-499-11	METER, LEVEL	
	⚠.1-532-741-11	FUSE, GLASS TUBE	
	1-535-535-11	TERMINAL, SHAFT GROUND	
	1-542-096-11	MICROPHONE (STEREO)	
	1-542-097-11	MICROPHONE UNIT	
	1-547-262-11	LENS, ZOOM (VCL-1108YA)	
	1-619-921-11	FP-19 FLEXIBLE BOARD	
	1-626-250-11	FP-109 FLEXIBLE BOARD	
	1-626-251-11	FP-116 FLEXIBLE BOARD	
	1-626-252-11	FP-117 FLEXIBLE BOARD	
	1-807-744-11	SENSOR (DEW)	
	8-835-138-01	MOTOR, DC (DNR-5301B)	
IC101	8-750-010-64	IU022AK-10A (CCD IMAGER)	
L901	⚠.1-451-296-11	DEFLECTION YOKE(BLACK & WHITE)(640UH±5%)	
M901	A-7040-031-A	MOTOR ASSY, L (LODING)	
M902	8-835-196-01	MOTOR, DC BHF-2802A (CAPSTAN)	
M903	8-835-110-01	MOTOR, DC (DNR-5301A) (CONTROL)	
M904	3-707-417-01	MOTOR ASSY, AF (FOCUS)	
M905	3-707-418-01	MOTOR ASSY, PZ (ZOOM)	
PM901	⚠1-454-377-21	SOLENOID, PLUNGER	
S901	1-553-226-00	SWITCH, LEAF (CASSETTE LOCK)	
S902	1-554-942-11	SWITCH, PUSH (RECOG)	
S904	1-571-373-11	SWITCH, PUSH (ZOOM T/W)	
V901	⚠.1-546-061-11	CATHODE-RAY TUBE, B/W	

****

ACCESSORIES AND PACKING MATERIALS

****

Part No.	Description	Remark
A-6767-701-A	RFU ADAPTER (RFU-89UC)	
1-556-955-21	CABLE, AUDIO VIDEO	
*3-721-769-01	CUSHION (LOWER)	
*3-721-770-01	CUSHION (UPPER)	
*3-725-321-11	CARTON, OUTER (US/CANADIAN MODEL)	
3-725-321-21	CARTON, OUTER (E MODEL)	
3-769-732-21	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH) (US/CANADIAN MODEL)	
3-769-732-61	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH) (E MODEL)	
8-952-321-95	HEADPHONE MDR-E434/V, B SET	
** ACP-88	AC POWER ADAPTER	
** BCA-70	BATTERY CHARGE ADAPTER	
*** NP-22H	BATTERY PACK	

Note:

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.

*** MARK PARTS IS AVAILABLE AS A OPTIONAL ACCESSARIES.

****

HARDWARE LIST

SCREW

Part No.	Description
7-621-255-20	SCREW +P 2X4
7-621-255-45	SCREW +P 2X6
7-621-255-50	SCREW +P 2X8
7-621-255-65	SCREW +P 2X10
7-621-259-35	SCREW +P 2.6X5
7-621-555-10	SCREW +K 2X3
7-621-772-08	SCREW +B 2X3
7-621-772-18	SCREW +B 2X4
7-621-772-38	SCREW +B 2X6
7-621-772-68	SCREW +B 2X12
7-621-772-78	SCREW +B 2X14
7-621-773-86	SCREW +B 2.6X4
7-621-775-10	SCREW +B 2.6X4
7-621-775-20	SCREW +B 2.6X5
7-627-553-48	SCREW, PRECISION +P 2X4
7-627-850-18	SCREW, PRECISION +P 1.4X2.5
7-628-254-20	SCREW +PS 2.6X8
7-685-103-19	SCREW +P 2X5 TYPE2 SLIT
7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT
7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S
7-685-135-19	SCREW +BTP 2.6X10 TYPE2 N-S
7-685-203-19	SCREW +KTP 2X5 TYPE2 NON-SLIT
7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S
7-685-536-19	SCREW +BTP 2.6X12 TYPE2 N-S
7-685-538-19	SCREW +BTP 2.6X16 TYPE2 N-S
7-685-780-04	SCREW +PTT 2X3 (S)
7-621-255-45	SCREW +BVTT 2X6 (S)

WASHER

Part No.	Description
7-623-710-57	WASHER 10, WABE TYPE
7-623-710-87	WASHER 16, WABE TYPE

STOP RING

Part No.	Description
7-624-101-01	STOP RING 1.2 (E TYPE)
7-624-102-04	STOP RING 1.5, TYPE -E
7-624-105-04	STOP RING 2.3, TYPE -E
7-624-106-04	STOP RING 3.0, TYPE -E

TAPPING

Part No.	Description
7-685-105-19	TPG +P 2X8, TYPE 2, NON-SLIT

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

SECTION 7
CAMERA SECTION ADJUSTMENTS

During the adjustment, see the parts arrangement diagram relevant to the adjustment on page 276.

7-1. PRE-ADJUSTMENT PREPARATIONS (CAMERA BLOCK)

7-1-1. List of Servicing Jigs

- Oscilloscope
- Regulated power supply
- Adjusting screw driver
- L-shaped hexagonal wrench
- Stop watch
- Color monitor TV
- Vectorscope

Ref. No.	Name	Part No.	Use
J-1	Filter (C22)	J-6080-829-A	Automatic white balance operation check
J-2	ND filter 0.4	J-6080-806-A	IRIS setting adjustment, Max gain adjustment, chroma pedestal adjustment
	ND filter 0.1	J-6080-807-A	IRIS setting adjustment
	ND filter 0.9	J-6080-833-A	Chroma pedestal adjustment
	ND filter 1.0	J-6080-808-A	Max gain adjustment
J-3	Pattern box PTB-500 *1	J-6029-140-A	
J-4	Color bar pattern chart	J-6020-250-A	
J-5	Extension cable K (4P, 2mm pitch)	J-6080-871-A	
J-6	Extension cable M (2P, 2mm pitch)	J-6080-873-A	
J-7	Extension cable I (7P, 2mm pitch)	J-6080-869-A	
J-8	Siemens star	J-6080-875-A	Flange back adjustment

*1 PTB-100 (J-6020-490-A) is possible to use.

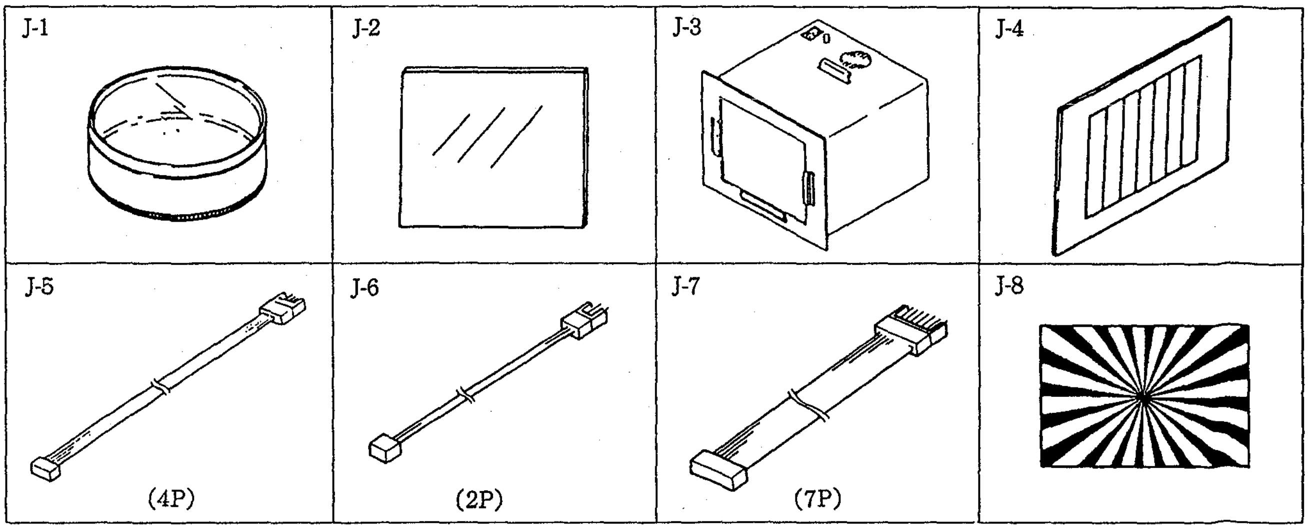


Fig. 7-1.

7-1-2. Preparations

Note : Refer to SECTION 2. DISASSEMBLY for details of the cabinet and individual boards removal procedure.

1) Connect extension cable as shown in Fig. 7-3.
2) EVF (Electrical View Finder) section (VF-7 board) is necessary for confirmation of shutter speed, white balance mode and etc.
   It can be removed by taking out CN404 on the EM-2 board.
3) The microphone unit is not necessary.
   Remove the stereo microphone unit CN401 and CN402 on the AU-45 board.

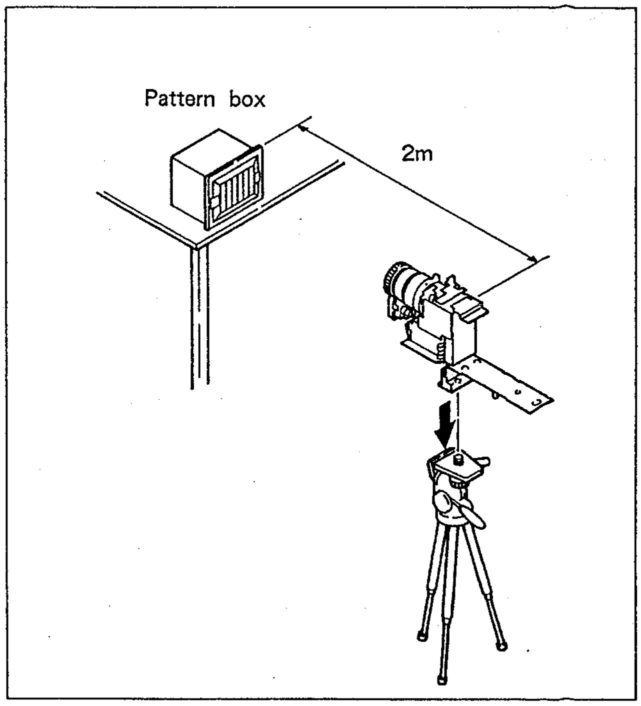
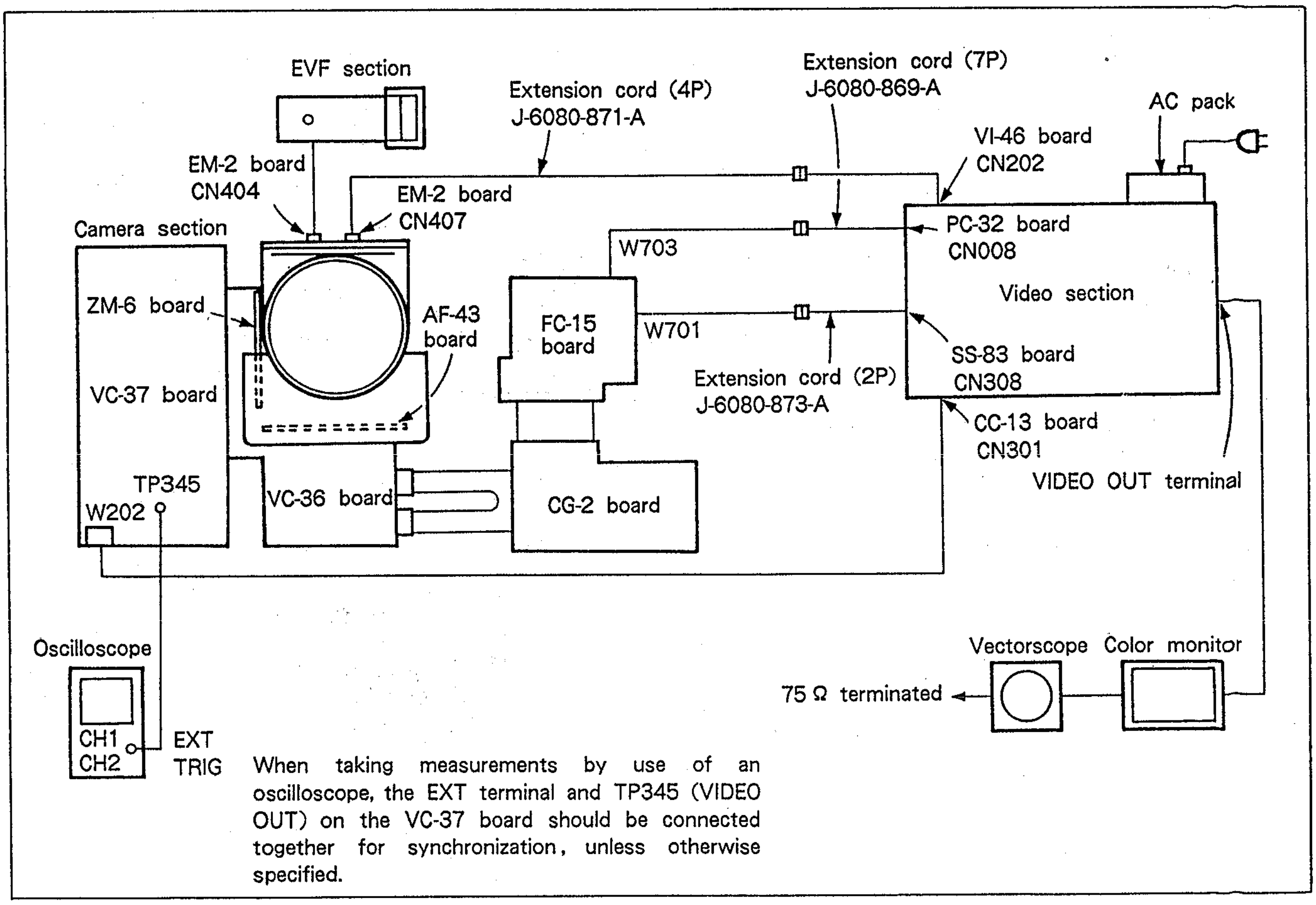

Pattern box
2m

Fig. 7-2


EVF section
Extension cord (4P)
J-6080-871-A
Extension cord (7P)
J-6080-869-A
AC pack
VI-46 board
CN202
EM-2 board
CN404
EM-2 board
CN407
Camera section
PC-32 board
CN008
W703
ZM-6 board
Video section
AF-43 board
FC-15 board
W701
SS-83 board
CN308
VC-37 board
Extension cord (2P)
J-6080-873-A
CC-13 board
CN301
VIDEO OUT terminal
TP345
W202
VC-36 board
CG-2 board
Oscilloscope
Vectorscope
Color monitor
75 Ω terminated
CH1
CH2
EXT
TRIG

When taking measurements by use of an oscilloscope, the EXT terminal and TP345 (VIDEO OUT) on the VC-37 board should be connected together for synchronization, unless otherwise specified.

Fig. 7-3

7-1-3. Caution

1) Setting of switches

Employ the following switch and control setting in making adjustments, unless otherwise noted.

1. IRIS control (RV801 on CG-2 board)
   ···········Center click position
2. FOCUS switch (S801 on CG-2 board)
   ···········Manual mode
3. WHITE BALANCE switch (S803 on CG-2 board)
   ···········☼ (INDOOR) position.
4. SHUTTER SPEED switch (S804 on CG-2 board)
   ···········Normal position ("60" position)

2) Adjusting order

As a rule, adjust in described order.

3) Objects

1. Color bar chart (Standard picture frame)
   When making adjustments by the use of a color bar chart, first adjust picture frame as shown in Fig. 7-4.(Standard picture frame).

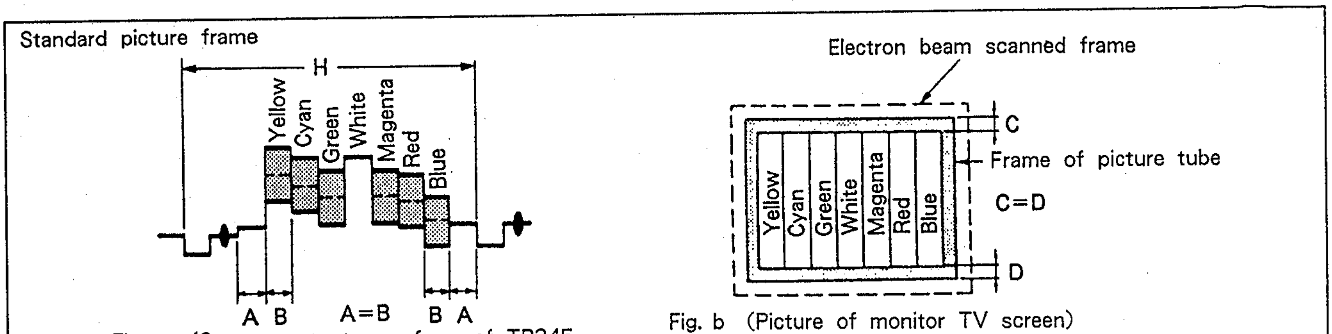

Standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
Electron beam scanned frame
C
Frame of picture tube
C=D
Yellow
Cyan
Green
White
Magenta
Red
Blue
D

Fig. a (Camera output waveform of TP345 on VC-37 board)

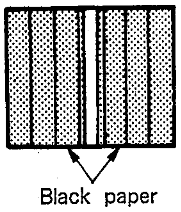
Fig. b (Picture of monitor TV screen)

By operating the camera zooming and orientation, have the Fig. a output waveform output and the Fig. b monitor TV image displayed.

Fig. 7-4.

2. Full white pattern
   Remove color bar chart off pattern box, and set zoom lever to fully TELE side (88 mm).
3. High luminance pattern
   Prepare a high luminance pattern as shown in Fig. 7-5 and adjust picture frame as shown in Fig. 7-6.
4. Siemens star (J-6080-875-A)
   Orient camera to have the pattern center coincide with the monitor screen center on a monitor TV screen.

High luminance pattern


Black paper

Cover a color bar chart with black paper, except half the width of its white stripe. Then shoot the chart in this state.

Fig. 7-5

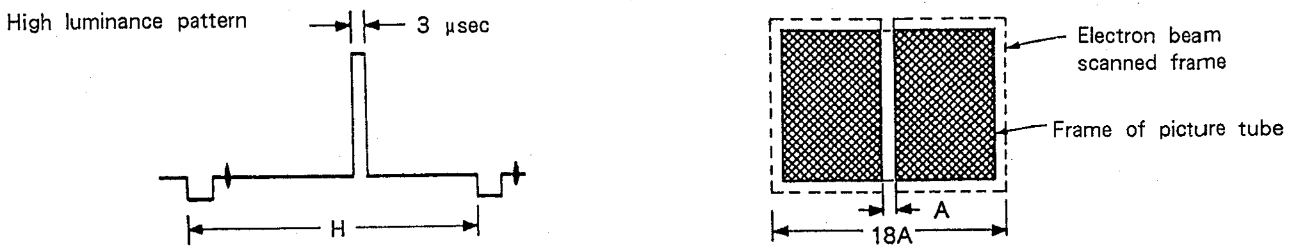

High luminance pattern
3 μsec
H
Electron beam scanned frame
Frame of picture tube
A
18A

Fig. a (Camera output waveform of TP345 on VC-37 board)

Fig. b (Picture of monitor TV screen)

By operating the camera zooming and orientation have the Fig. a output waveform output and the Fig. b monitor TV image displayed.

Fig. 7-6.

7-2. CAMERA SYSTEM ADJUSTMENT

7-2-1. Flange Back Adjustment

Subject	Siemens star (At approx. 2.0 m distance in front of CCD surface (marked with "ф"))
Measurement Point	Check with a monitor TV
Measuring Instrument	
Adjusting Element	Flange back adjusting pin
Tools	L-shaped hexagonal wrench and screwdriver

Adjusting method :

1) Set the FOCUS switch (S801 on the CG-2 board) to its MANUAL Position.
2) Position a Siemens star 2.0 m directly in front of CCD surface (See Fig. 7-2.).
3) Orient camera block to have the center of the Siemens star on the monitor TV screen coincide with the monitor screen center.
4) Check to assure the smooth motion of zoom lever to both its extreme WIDE position (11 mm) and TELE position (88 mm), and then set it at the extreme WIDE position. (In this process, also check the zooming operation on the monitor screen.)
5) Set IRIS control (RV801 on the CG-2 board) at its OPEN position.
6) Set the lens focusing mark at the center of "2".

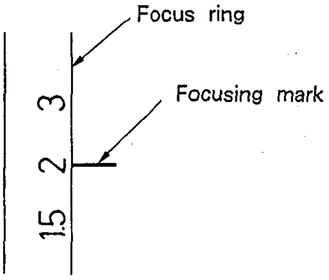

Focus ring
Focusing mark
1.5 2 3

Fig. 7-7.

7) Loosen hexagonal socket head setscrew ❶ with an L-shaped hexagonal wrench. (See Fig. 7-9.)
8) By turning flange back adjusting pin ❷ while watching the monitor screen, attain the highest definition of a wedge at the Siemens star center on the screen. (Turn it several times to the right and left, to assure the definition to be the highest.)

   Note : Do not turn the adjusting pin excessively in either direction at a time.
9) While holding flange back adjusting pin ❷ down for any further turns, retighten hexagonal socket head setscrew ❶.
10) With zoom lever fixed at its WIDE end, turn focus ring, and set it at a position that provides the highest definition image of the wedge. Check to assure the focusing mark position thus attained to be within the Fig. 7-8 range.

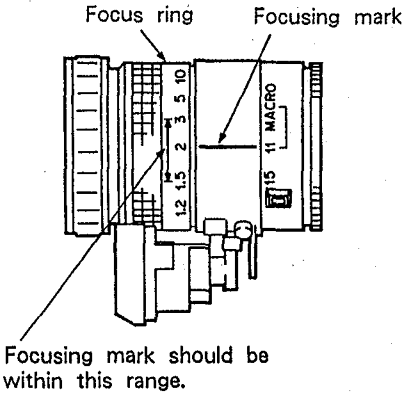

Focus ring
Focusing mark
1.2 1.5 2 3 5 10
15 11 MACRO
Focusing mark should be within this range.

Fig. 7-8

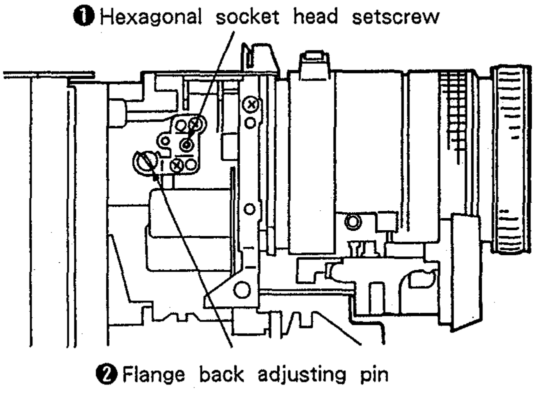

❶ Hexagonal socket head setscrew
❷ Flange back adjusting pin

Fig. 7-9.

11) Turn zoom lever fully to its extreme TELE position.
12) By turning focus ring, check to assure the position that provides the highest definition view of the wedge. Confirm that the focus ring is set within indication "2" at this time.

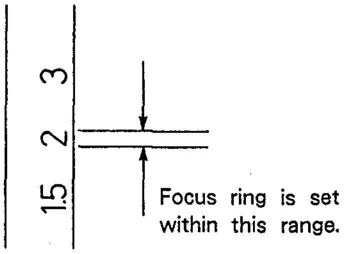

1.5 2 3
Focus ring is set within this range.

Fig. 7-10.

7-2-2. Camera DC-DC Converter Voltage Check (VC-36 Board)

Measuring Instrument	Digital voltmeter
5V check	
Specified Value	5.1±0.05 Vdc
Measurement Point	Pin ① of W104
7V check	
Specified Value	7.0±0.15 Vdc
Measurement Point	Pin ② of W104
15V check	
Specified Value	15.0±0.2 Vdc
Measurement Point	Pin ④ of W104
30V check	
Specified Value	30.0±1.0 Vdc
Measurement Point	Pin ⑤ of W104

Checking method :

1) Confirm that the power voltages satisfy the respective specified values.

7-2-3. Clock Oscillation Frequency Adjustment (VC-37 Board)

Measurement Point	Pin ⑰ (CL) on DT-62 board
Measuring Instrument	Frequency counter
Adjusting Element	CT201
Specified Value	14318181±170 Hz

Adjusting method :

1) Adjust to 14318181±170 Hz with CT201.

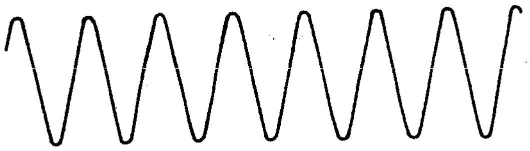


Fig. 7-11.

7-2-4. HALL Set Adjustment (ZM-6 Board)

Subject	Arbitrary
Measurement Point	TP932
Measuring Instrument	Digital voltmeter
Adjusting Element	H GAIN : RV931 H OFFSET : RV932
Specified Value	When connected to GND : 4.0±0.15 Vdc When connected to 3V : 3.0±0.15 Vdc

Preparations :

1) Obtain a +3.0 Vdc regulated power supply and connect to TP931 only when indicated.

Adjusting method :

1) Set RV932 to its mechanical center (refer to Fig. 7-12.).
2) Adjust RV931 so the difference in TP932 voltage values is 1.0±0.1 Vdc when TP931 is connected to the "+3.0 Vdc power supply" and when TP931 is connected GND.
3) Connect TP931 to the "+3.0 Vdc power supply".
4) Use RV932 to set the voltage at TP932 to 3.0 ±0.1 Vdc.
5) Disconnect TP931 from the "+3.0 Vdc power supply", connect to GND, and confirm that the voltage at TP932 is 4.0±0.15 Vdc.
   Repeat steps 2) through 5) if the specified value is not satisfied.

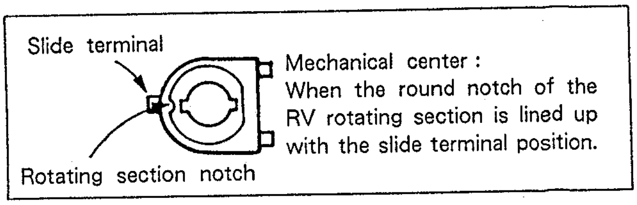

Slide terminal
Rotating section notch
Mechanical center :
When the round notch of the RV rotating section is lined up with the slide terminal position.

Fig. 7-12.

7-2-5. Voltage Adjustment (VC-36 Board)

Subject	Optional
Measurement Point	TP101 (Pin ④ of IC101)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV101
Specified Value	(Imager voltage) ±0.05 Vdc

Connection :

1) Connect TP102 to GND using a jumper wire.

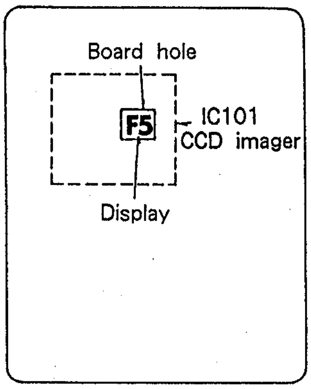
Adjusting method :

1) Adjust to (Imager voltage) ±0.05 Vdc with RV101.

Note : VSUB specified voltage is indicated by the two digits "integer symbol" and "decimal".

Integer symbol	Integer value
1	1
⋮	⋮
9	9
A	10
B	11
C	12
D	13
E	14
F	15
G	16
H	17
I	18
J	19
K	20
L	21

VC-36 board (Conductor side)



Example :
For F5 display, integer symbol is F→15, and decimal value is 5→0.5, so VSUB voltage is 15+0.5=15.5 (Vdc).

Fig. 7-13.

7-2-6. IRIS Set Adjustment (VC-37 Board)

Subject	Color bar chart standard picture frame
Filter	ND filters 0.4 and 0.1
Measurement Point	TP251 (CCD OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV254
Specified Value	250±5 mV

Adjusting method :

1) With ND filter not attached, adjust signal level to 250±5 mV with RV254. (Be sure to end the adjustment by turning RV254 in the direction which reduces the signal level.)
2) Attach ND filter 0.5 (0.4+0.1) in front of the lens and confirm that the signal level changes smoothly.
3) Remove the ND filter and confirm that the signal level is 250±15 mV.
4) If the specifications are not satisfied, repeat steps 1) through 3).

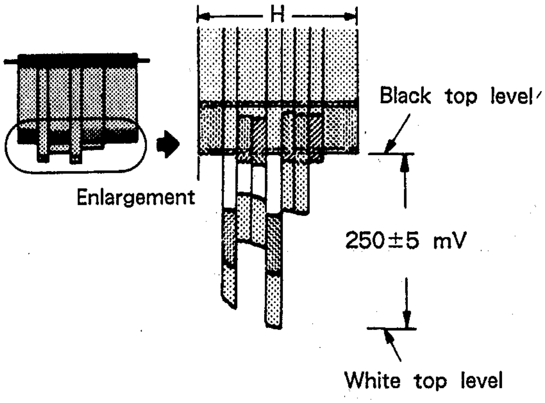


Fig. 7-14.

7-2-7. AGC Set Adjustment (VC-37 Board)

Subject	Color bar chart standard picture frame
Measurement Point	TP252 (Y_L LINE)
Measuring Instrument	Oscilloscope
Adjusting Element	RV252 (AGC) RV255 (AGC MIN GAIN)
Specified Value	MIN GAIN : 380±10 mV AGC : 400±10 mV

Note : Set the following RV on the VC-37 board to mechanical center.

- RV253 (MAX GAIN)

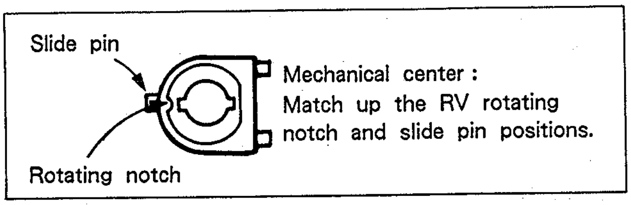


Fig. 7-15.

Adjusting method :

1) Adjust RV252 so that the signal level becomes maximum.
2) Turn RV252 slowly in clockwise direction (↻) so that the signal level becomes minimum.
3) Adjust RV255 so that the signal level becomes 380±10 mV. (AGC MIN GAIN adjustment)
4) Adjust RV252 so that the signal level becomes 400±10 mV. (AGC adjustment)

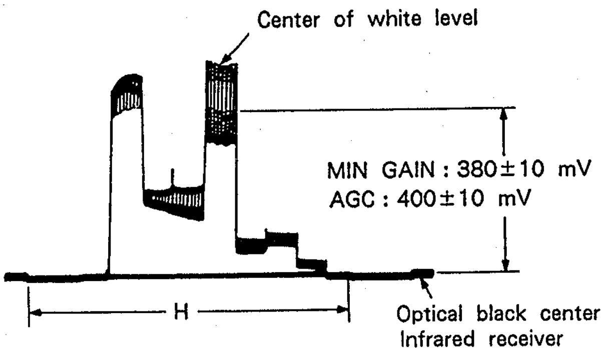


Fig. 7-16.

7-2-8. Matrix Adjustment

Connection :

1) Connect the following points with a jumper wire before performing matrix adjustment. TP253 (Pin ⑤ on the CP-21 board) and TP254 (GND)

1. Matrix gain 1 adjustment (CP-21/VC-37 boards)

Subject	Color bar chart standard picture frame
Measurement Point	TP341 on VC-37 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV002 (MATRIX GAIN 2) on CP-21 board
Specified Value	"green" : "red" = 0.9 : 3.0

Adjusting method :

1) The WHITE BALANCE switch (S803 on the CG-2 board) should be set to ☼ (INDOOR) position.
2) Adjust "green" and "red" levels to 0.9 : 3.0 with RV002 on the CP-21 board.

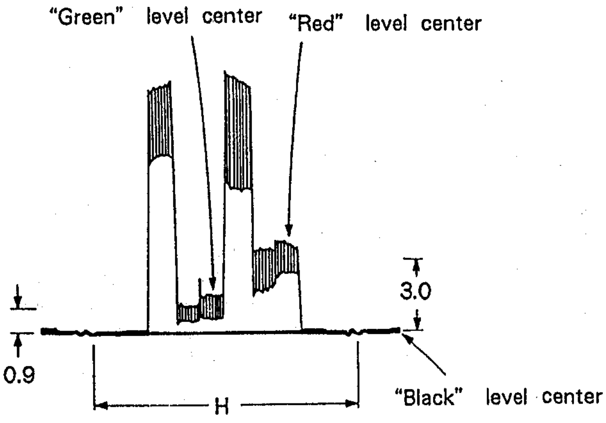


Fig. 7-17.

2. Matrix gain 2 adjustment (CP-21/VC-37 boards)

Subject	Color bar chart standard picture frame
Measurement Point	TP342 on VC-37 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV001 (MATRIX GAIN 1) on CP-21 board
Specified Value	"yellow" : "blue" = 1.8 : 3.0

Adjusting method :

1) The WHITE BALANCE switch (S803 on the CG-2 board) should be set to ☼ (INDOOR) position.
2) Adjust "yellow" and "blue" levels to 1.8 : 3.0 with RV001 on the CP-21 board .

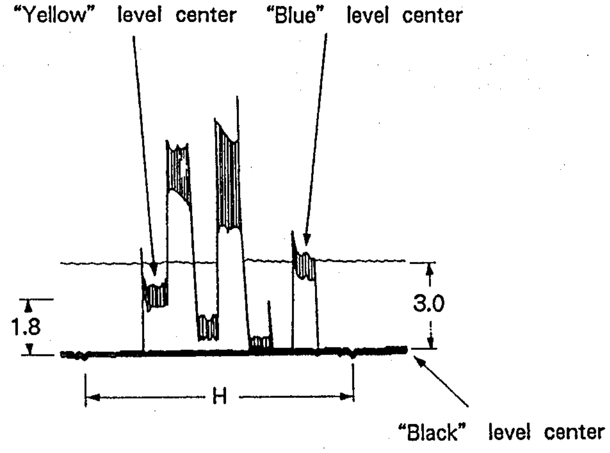

"Yellow" level center
"Blue" level center
3.0
1.8
H
"Black" level center

Fig. 7-18.

7-2-9. Carrier Balance Adjustment (VC-36 Board)

1. Vectorscope employing process

Subject	All black (place black cap over lens.)
Measurement Point	VIDEO OUT terminal
Measuring Instrument	Vectorscope
Adjusting Element	RV301
Specified Value	Black luminance point should match with the origin.

Adjusting method :

1) Match the black luminance point with the origin using RV301.

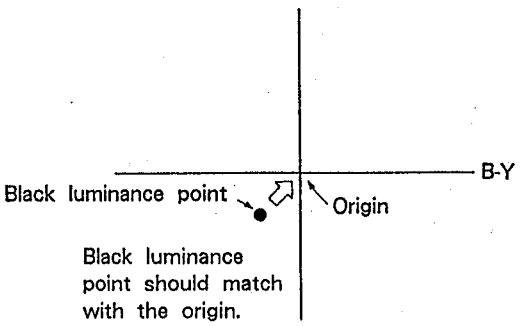

R-Y
B-Y
Black luminance point
Origin
Black luminance point should match with the origin.

Fig. 7-19.

2. Oscilloscope employing process

Subject	Color bar chart standard picture frame
Measurement Point	TP345 (VIDEO OUT) on VC-37 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV301 on VC-36 board
Specified Value	3.58 MHz component of black portion should be minimum

Adjusting method :

1) Adjust RV301 on the VC-36 board so that the amplitude of the black portion is at minimum.

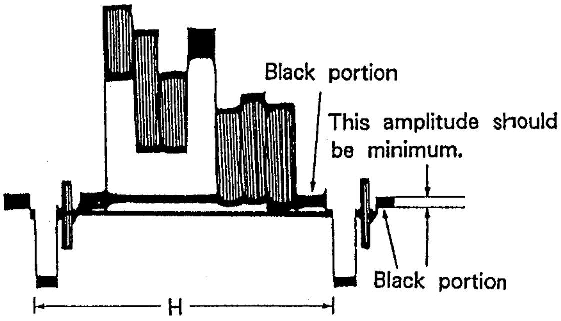

Black portion
This amplitude should be minimum.
Black portion
H

Fig. 7-20.

7-2-10. White Balance Adjustment (CP-21/VC-37 Board)

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X) : TP342 (B-Y OUT) on VC-37 board CH2 (Y) : TP341 (R-Y OUT) on VC-37 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV003 (R GAIN) on CP-21 board RV004 (B GAIN) on CP-21 board
Specified Value	The black and white luminescent spots should match.

Adjusting method :

1) Confirm that the WHITE BALANCE switch (S803 on the CG-2 board) is set to ☼ (INDOOR) position.
2) Adjust RV003 and RV004 on the CP-21 board so that the black and white luminescent spots match.

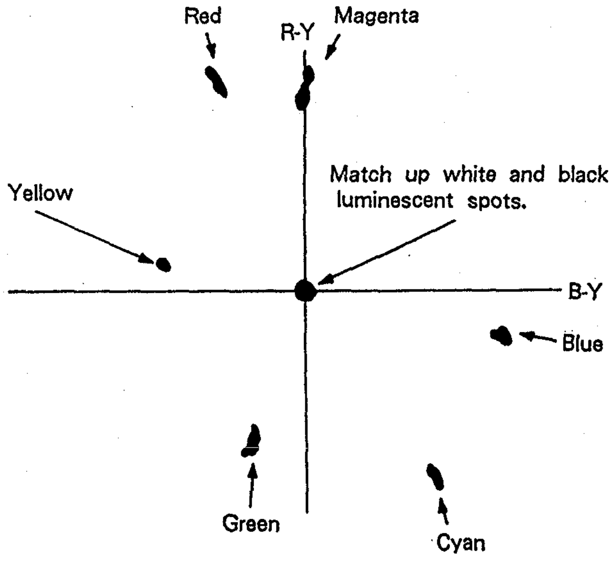

Red
R-Y
Magenta
Yellow
Match up white and black luminescent spots.
B-Y
Blue
Green
Cyan

Fig. 7-21.

7-2-11. Burst Level Adjustment (VC-37 Board)

Subject	All black (Place black cap over lens.)
Measurement Point	TP345 (VIDEO OUT)
Measuring Instrument	Oscilloscope (Trigger slope : +)
Adjusting Element	RV347 (BURST LEVEL)
Specified Value	140±5 mVp-p

Adjusting method :

1) Turn RV347 so that the burst amplitude becomes 140±5 mVp-p.

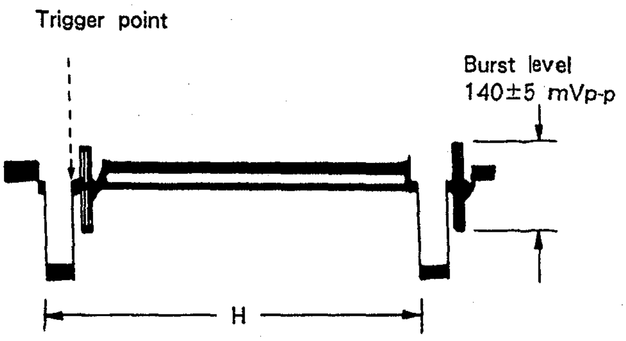

Trigger point
Burst level
140±5 mVp-p
H

Fig. 7-22.

7-2-12. Color Reproducibility Adjustment (using vectorscope) (CP-21/VC-37 Boards)

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO OUT terminal
Measuring Instrument	Vectorscope
Adjusting Element	CP-21 board • RV006 (B-Y HUE) • RV007 (R-Y HUE) • RV008 (B-Y GAIN) • RV009 (R-Y GAIN)
Specified Value	Each colour's luminescent spot must be within the colour reproducibility frame.

Note : 1) Confirm that the WHITE BALANCE switch (S803 on the CG-2 board) is set to ☼ (INDOOR) position.

2) Perform the adjustment after confirming that the burst luminescent spot is in the specified location and that the white lunimescent spot matches the original spot.(If the white luminescent spot does not match the original spot, perform white balance adjustment (RV003 and RV004 on the CP-21 board)).

Adjusting method :

1) Place the "red" luminescent spot within the color reproductivity frame with CP-21 board RV006 and RV009.
2) Place the "yellow" luminescent spot within the color reproductivity frame with CP-21 board RV007 and RV008.
3) Repeat steps 2) and 3) until the color luminescent spots are within the color reproductivity frame.
4) Set the WHITE BALANCE switch (S803 on the CG-2 board) to ✹ (OUTDOOR) position.
5) Confirm that the white luminescent spot moves to the outdoor color reproductivity frame.
6) Return the WHITE BALANCE switch to its original position.

Outdoor color reproducibility frame

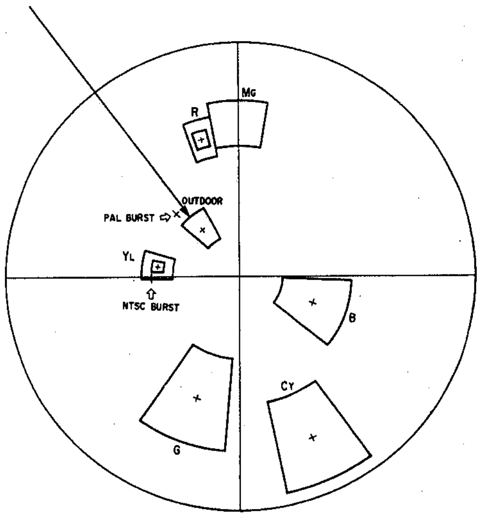


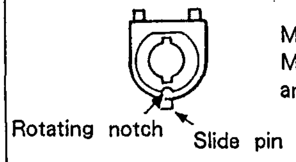
Fig. 7-23.

7-2-13. Color Reproducibility Adjustment (using oscilloscope)

Note : Perform "1. Gain adjustment" and "2. Color phase adjustment" after confirming that the WHITE BALANCE switch (S803 on the CG-2 board) should be set to ☼ (INDOOR) position.

1. Gain adjustment (CP-21/VC-37 boards)

Subject	Color bar chart standard picture frame
Measurement Point	TP345 (CAM OUT) on VC-37 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV008 (B-Y GAIN) on CP-21 board RV009 (R-Y GAIN) on CP-21 board
Specified Value	"red" level : 224±15 mVp-p "yellow" level : 131±12 mVp-p



Mechanical center :
Match up the RV rotating notch and slide pin positions.

Fig. 7-24.

Adjusting method :
1) Set RV006 (B-Y HUE) and RV007 (R-Y HUE) on the CP-21 board to mechanical center.(See Fig. 7-24.)
2) Adjust "red" amplitude to 224±15 mVp-p with RV009 on the CP-21 board.(Fig. 7-25. ①)
3) Adjust "yellow" amplitude to 131±12 mVp-p with RV008 on the CP-21 board. (Fig. 7-25. ②)

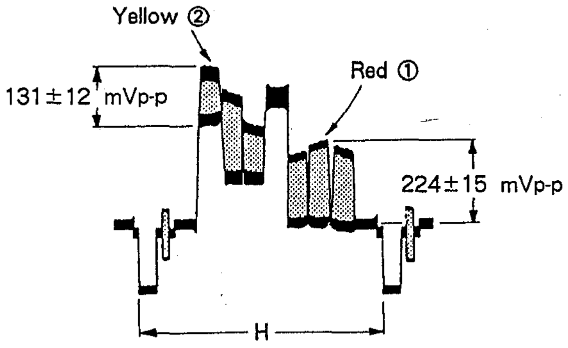


Fig. 7-25.

2. Hue adjustment (CP-21/VC-37 boards)

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X) : TP342 (B-Y) on VC-37 board CH2 (Y) : TP341 (R-Y) on VC-37 board
Measuring Instrument	Oscilloscope (X-Y mode) • Use oscilloscope color reproducibility frame.
Adjusting Element	RV006 (B-Y HUE) on CP-21 board RV007 (R-Y HUE) on CP-21 board
Specified Value	Each color luminescent spot must be within the color reproducibility frame. (See Fig. 7-26.)

Adjusting method :
1) Match up the black luminescent spot to the color reproductivity frame original spot on the oscilloscope.
2) Confirm that the white and black luminescent spots match.(If not, confirm that white balance is in INDOOR mode, then perform white balance adjustment (RV003 and RV004 on the CP-21 board)).
3) Place the yellow and red luminescent spots within the color reproductivity frame with RV006 and RV007 on the CP-21 board.
(Confirm that other color luminescent spots are within the color reproductivity frames.)
4) Set the WHITE BALANCE switch (S803 on the CG-2 board) to ✸ (OUTDOOR) position.
5) Confirm that the white luminescent spot moves to the outdoor color reproductivity frame.
6) Return the WHITE BALANCE switch to its original position.

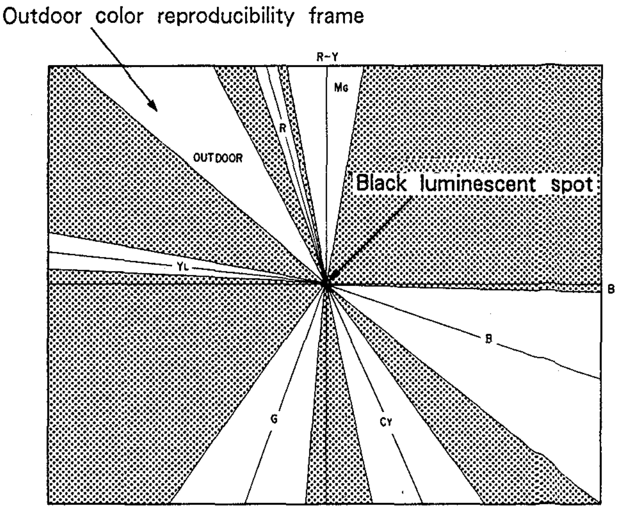


Fig. 7-26.

7-2-14. SET UP Adjustment (VC-37 board)

Subject	All black (Place black cap over lens.)
Measurement Point	TP345 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV344 (SET UP)
Specified Value	25±5 mV

Note : Light might enter through the clearance in the upper part of the CCD imager. Cover the upper part of the CCD imager with a black sheet etc.

Adjusting method :
1) Adjust SET UP level to 25±5 mV with RV344.

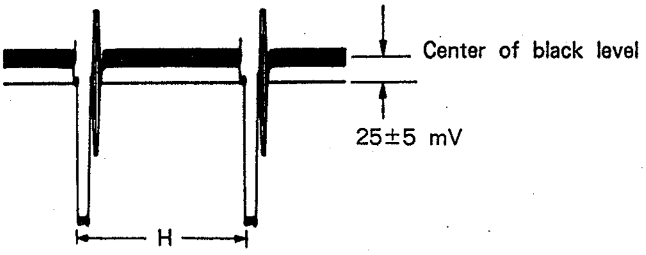

Center of black level
25±5 mV
H

Fig. 7-27.

7-2-15. SYNC Level Adjustment (VC-37 Board)

Subject	All black (Place black cap over lens.)
Measurement Point	TP345 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV345 (SYNC LEVEL)
Specified Value	140±5 mVp-p

Adjusting method :
1) Adjust burst level to 140±5 mVp-p with RV345.

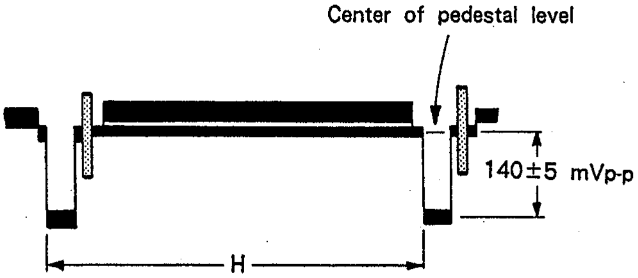

Center of pedestal level
140±5 mVp-p
H

Fig. 7-28.

7-2-16. Y Level Adjustment (VC-37 Board)

Subject	Color bar chart standard picture frame
Measurement Point	TP345 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV342 (Y LEVEL)
Specified Value	360±5 mV

Note : Turn RV343 (WC) fully clockwise (○) and maximize TP345 signal level.

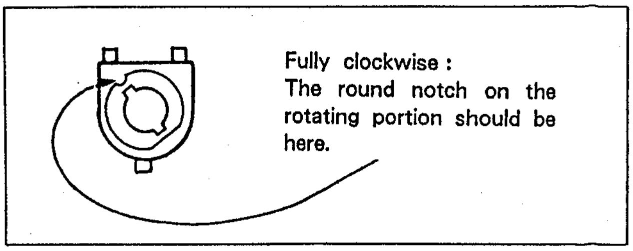

Fully clockwise :
The round notch on the rotating portion should be here.

Fig. 7-29.

Adjusting method :
1) Adjust Y level to 360±5 mV with RV343.
2) Perform aperture adjustment and white clip adjustment.

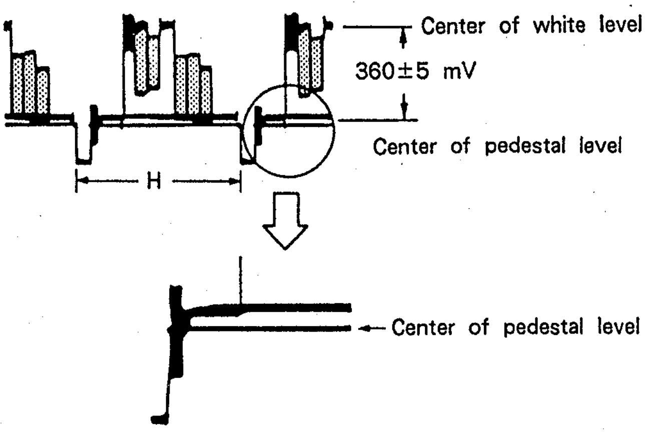

Center of white level
360±5 mV
Center of pedestal level
H
Center of pedestal level

Fig. 7-30.

7-2-17. Aperture Adjustment (VC-37 Board)

Subject	Color bar chart standard picture frame
Measurement Point	TP345 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV341 (APL)
Specified Value	15±5 mV

Adjusting method :

1) Adjust with RV341 so that the bottom peak between "green" and "white" is set at 15±5 mV above the pedestal level.

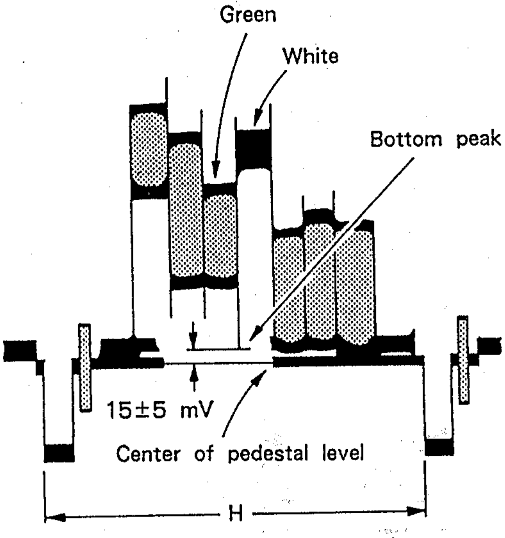

Green
White
Bottom peak
15±5 mV
Center of pedestal level
H

Fig. 7-31.

7-2-18. White Clip Adjustment (VC-37 Board)

Subject	High luminance pattern
Measurement Point	TP345 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV343 (WHITE CLIP)
Specified Value	420±10 mV

Adjusting method :

1) Adjust the signal level to 420±10 mV with RV343.

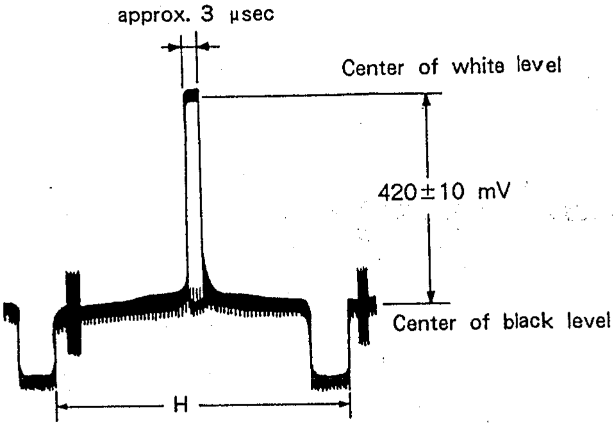

approx. 3 μsec
Center of white level
420±10 mV
Center of black level
H

Fig. 7-32.

7-2-19. Max Gain Adjustment (VC-37 Board)

Subject	Color bar chart standard picture frame
Filter	ND filters 1.0 (2 pcs), 0.4 (1 pcs), 0.1 (1 pcs)
Measurement Point	TP345 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV253 (MAX GAIN)
Specified Value	200±5 mV

Adjusting method :

1) Mount ND filter 2.5 (1.0+1.0+0.4+0.1) on the lens.
2) Adjust to 200±5 mV with RV253.

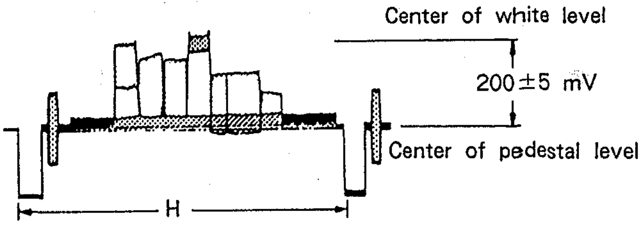

Center of white level
200±5 mV
Center of pedestal level
H

Fig. 7-33.

7-2-20. Chroma Pedestal Adjustment (CP-21/VC-37 Boards)

Subject	Color bar chart standard picture frame
Filter	ND filters 0.9 (2 pcs), 0.4 (1 pcs)
Measurement Point	TP345 (VIDEO OUT) on VC-37 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV005 on CP-21 board
Specified Value	93±30 mVp-p

Adjusting method :

1) Attach ND filter 2.2 (0.9+0.9+0.4) on the lens.
2) Adjust RV005 so that the "cyan" level becomes 93±30 mVp-p.

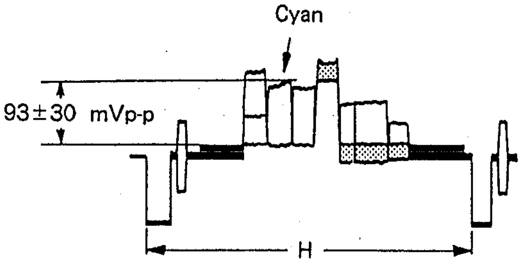


Fig. 7-34.

7-2-21. Auto-following White Balance Adjustment (AW-10 Board)

Subject	All white pattern *Note : 1)
Measurement Point	CH1 : TP502 (R CONT) CH2 : TP501 (B CONT)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV501
Specified Value	CH1 : "L" (0.5V) CH2 : "H" (1.9V)

Note : 1) Allow light to hit the white balance sensor (SB501) by passing through a white dispersing plate. A camera white lens cap can be used for the white dispersing plate.

2) Correct adjustment can not be done if light other than that from the pattern box hits the white balance sensor. Adjustment should preferably be done in a dark room, but if this is not possible, take the following measures before performing the adjustment.
   1. Place the camera on black paper. (This is also necessary even when performing the adjustment in a dark room.)
   2. Confirm the camera and pattern box are less than 0.5 m apart. (Focusing not required)
   3. Cover the white balance sensor with black paper so that light other than that from the pattern box does not hit it.

Connection :

1) Perform the following connections and switch settings to set the unit to test mode.
   - Connect TP103 ($\overline{\text{WB INDOOR}}$) on the VC-36 board to GND using a jumper wire.
   - S803 on the CG-2 board (WHITE BALANCE) ········AUTO

Adjusting method :

1) Turn RV501 and confirm that CH1 takes the two values "L" (0.5 Vdc) and "H" (1.0 Vdc) and that CH2 takes the two values "L" (1.0 Vdc) and "H" (1.9 Vdc).
2) Slowly turn RV501 and stop at the point where CH1 is "L" (0.5 Vdc) and CH2 is "H" (1.9 Vdc).

7-2-22. Auto-following White Balance Operation Check

Subject	All white pattern *Note
Filter	Color temperature correction filter C22
Measurement Point	Check on monitor TV
Measuring Instrument	

Note : Refer to Note : 2) in the preceding item.

Checking method :
1) Set for AUTO WHITE BALANCE mode with the WHITE BALANCE switch (S803 on the CG-2 board).
2) Cover the camera with black paper so that light other than that from the pattern box does not enter the white balance sensor (SB501).
3) Confirm that there is no color on the monitor picture.
4) Place the color temperature correction filter C22 on the white balance sensor.(Use black paper to confirm that light other than that form the filter does not enter.)
5) Confirm that the monitor picture becomes a light orange color. (Response takes 2 to 3 seconds.)
6) Return the WHITE BALANCE switch to INDOOR mode.

7-2-23. Manual IRIS Check

Subject	Color bar chart standard picture frame
Measurement Point	Check on monitor TV
Measuring Instrument	
Specified Value	CLOSE : All black OPEN : Color bar chart fully illuminated

Checking method :
1) Turn IRIS control (RV801 on the CG-2 board) fully to the CLOSE side.
2) Confirm that the monitor TV picture is all black.
3) Turn IRIS control fully to the OPEN side.
4) Confirm that the fully illuminated color bar chart on the monitor TV picture disappears.

7-3. CHARACTER GENERATOR SYSTEM ADJUSTMENT

7-3-1. System Clock Adjustment (FC-15 Board)

Mode	Standby
Subject	Optional
Measurement Point	Pin ⑫ on IC701 ($\overline{\text{SCK}}$)
Measuring Instrument	Frequency counter
Adjusting Element	RV703
Specified Value	165±5 kHz

Connection :
1) Make jumper wire connections at the two following locations on the FC-15 board.
   - Pin ⑱ of IC701 ($\overline{\text{CAM DOWN}}$) —— GND
   - Pin ⑲ of IC701 ($\overline{\text{TEST}}$) —— GND

Adjusting method :
1) Switch CAMERA POWER (S706) on, and engage a standby mode.
2) Adjust to 165±5 kHz with RV703.

7-3-2. Title Position Adjustment (CG-2 Board)

Subject	Totally black (with lens covered with a black cap)
Measurement Point	TP345 (VIDEO OUT) on VC-37 board
Measuring Instrument	Oscilloscope
Adjusting Element	CT801 on CG-2 board
Specified Value	A=B

Adjusting method :
1) Confirm that the dot signal is output by pressing TITLE MAIN switch (S810 on the CG-2 board) more than 3 seconds.
2) Adjust CT801 on CG-2 board so that the widths of A section and B section are equal.

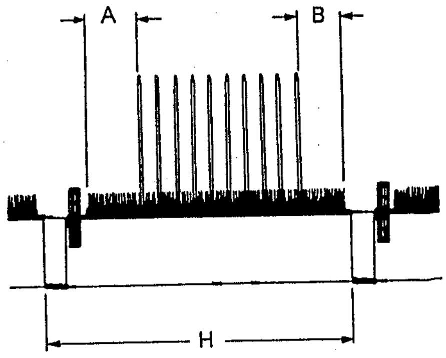


Fig. 7-35.

7-3-3. Clock Frequency Adjustment (FC-15 Board)

Mode	Standby
Subject	Arbitrary
Measurement Point	Pin ㊲ on IC701
Measuring Instrument	Frequency counter
Adjusting Element	CT701
Specified Value	8192.00±0.05 Hz

Connections :

1) Connect the following 2 places by jumper wire.
   - Pin ⑱ of IC701 ($\overline{\text{CAM DOWN}}$) —— GND
   - TP703 (Pin ⑲ of IC701 ($\overline{\text{TEST}}$)) —— GND

Adjusting method :

1) Turn ON the CAMERA POWER switch (S706) to set to the standby mode.
2) Confirm that the character shown in Fig. 7-36 is displayed on the monitor TV or EVF screen.
3) Adjust by CT701 to 8192.00±0.05 Hz.

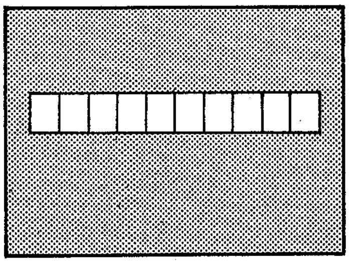


Fig. 7-36.

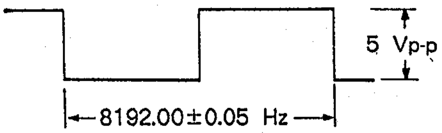


Fig. 7-37.

7-3-4. Wiper Adjustment (FC-15 Board)

Subject	Arbitrary
HT adjustment	
Measurement Point	Pin ⑭ of IC702
Measuring Instrument	Oscilloscope
Adjusting Element	RV702 (HT)
Specified Value	4.6±0.6 μsec
VT adjustment	
Measurement Point	Confirmation on monitor TV screen
Measuring Instrument	
Adjusting Element	RV701 (VT)
Specified Value	2.0±0.1 msec

Connections :

1) Supply DC voltage of 2.50±0.05 Vdc to Pin ① of W701 (A. FADER) on the FC-15 board from a regulated power supply.
2) Connect TP703 (Pin ⑲ of IC701 (TEST)) to GND with a jumper wire.

Adjusting method :

1) Connect the oscilloscope to Pin ⑭ of IC704 and monitor at the H period (H : 20 μsec/div).
2) Adjust RV702 so that the pulse width of the HT pulses being generated is 4.6±0.6 μsec.

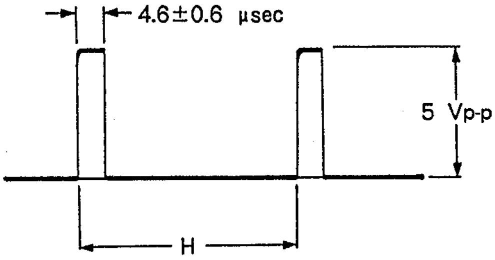


Fig. 7-38.

3) Set the oscilloscope to the V period. (H : 5 msec /div)
4) Adjust RV701 so that the pulse width of the VT pulses being generated is 2.0±0.1 msec.

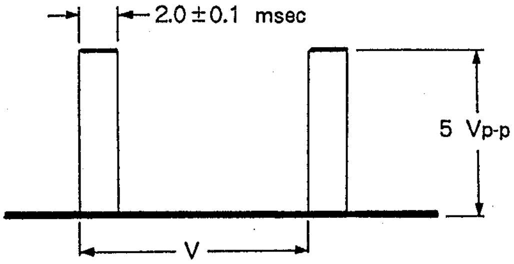


Fig. 7-39.

7-3-5. Title White Level Adjustment (CG-2 Board)

Subject	Totally black (with lens covered with a black cap)
Measurement Point	TP345 (VIDEO OUT) on VC-37 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV802 on CG-2 board
Specified Value	280±20 mV

Adjusting method :

1) Confirm that the dot signal is output by pressing TITLE MAIN switch (S810 on the CG-2 board) more than 3 seconds.
2) Adjust RV802 on CG-2 board so that the dot siganl is 280±20 mV.

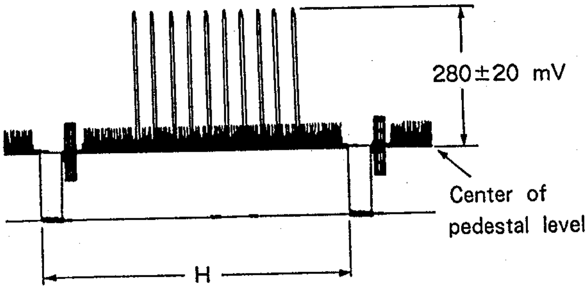


Fig. 7-40.

7-4. AUTO FOCUS SYSTEM ADJUSTMENT

7-4-1. AF DC-DC Converter Output Voltage Adjustment (CC-13 Board)

Subject	Arbitrary
Measurement Point	Pin ① of CN901
Measuring Instrument	Didital voltmeter
Adjusting Element	RV903
Specified Value	6.1±0.1 Vdc

Adjusting method :

1) Adjust to 6.0±0.1 Vdc using RV903.

7-4-2. Offset Adjustment (AF-43 Board)

Subject	Arbitrary
Measurement Point	CH1 : Pin ⑧ of IC011 (V COMP) CH2 : Pin ⑦ of IC011 (C INT) • Refer to Fig. 7-42.
Measuring Instrument	Oscilloscope Trigger source : CH1
Adjusting Element	A−B level : RV011 A+B level : RV012
Specified Value	Flat waveform at Pin ⑦ of IC011 (C INT)

Preparations :

1) Set the FOCUS switch to the AUTO position.
2) Connect Pin ⑲ (MODE) of IC011 and GND using a jumper wire to make emission of infrared light continuous.
3) Cover the infrared receiver section (D001 on the AF-44 board) with black paper, etc., to prevent the input of infrared light.

Adjusting method :

1) Make the waveform from Pin ⑦ (C INT) of IC011 flat using RV011 and RV012.

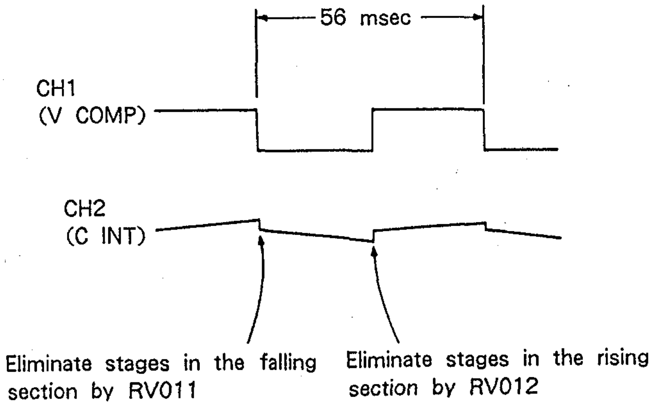

56 msec
CH1
(V COMP)
CH2
(C INT)
Eliminate stages in the falling section by RV011
Eliminate stages in the rising section by RV012

Fig. 7-41.

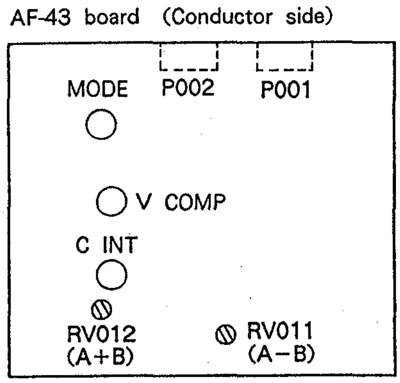

AF-43 board (Conductor side)
MODE
P002
P001
V COMP
C INT
RV012
(A+B)
RV011
(A−B)

Fig. 7-42.

7-4-3. Auto Focus Distance Measurement Adjustment

Subject	Siemens star (At 2.0 m directlyin front of lens reference plane ("ф" mark))
Measurement Point	Check with monitor TV
Measuring Instrument	
Adjusting Element	Screw for AF adjustment
Specified Value	Focus mark position is with in range of ±2.0 mm in relation to manual focusing

Switch settings :

- ZOOM lever····················TELE position (88 mm)

Adjusting method :

1) Confirm that the Siemens star is at a distance of 2.0 m directly in front of the lens reference plane ("ф" mark).
2) Set the FOCUS switch to the MANUAL position.
3) Adjust the focus manually and confirm that the focus mark is within the range shown in Fig. 7-44. Make a note of the focus mark position at this time. (When the specified value cannot be satisfied, perform "Flange Back Adjustment".)
4) Set the FOCUS switch to the AUTO position.
5) Rotate AF adjustment screw to line up the focus mark with the position noted in 3).
6) Set the focus ring to the far position (∞) and release your hand.
7) Confirm that the focus mark is within ±2.0 mm of the position noted in 3).
8) Set the focus ring to the near position (1.2) and release your hand.
9) Confirm that the focus mark is within ±2.0 mm of the position noted in 3).

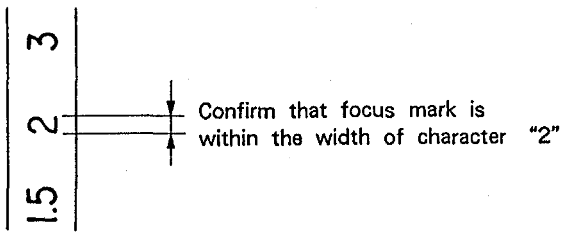

3
2
1.5
Confirm that focus mark is within the width of character "2"

Fig. 7-43.

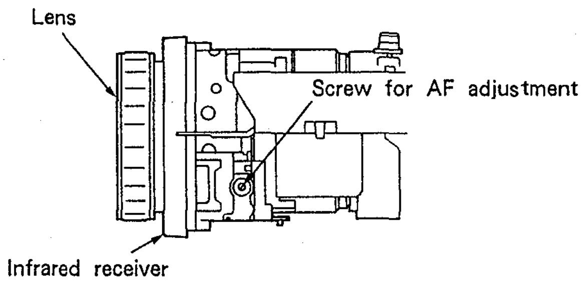

Lens
Screw for AF adjustment
Infrared receiver

Fig. 7-44.

7-4-4. Motor Voltage Adjustment

Subject	Arbitrary (at 0.9 m directly in front of lens reference plane ("ф" mark))
Measuring Instrument	Stopwatch
Specified Value	2.0±0.5 sec.

Zoom lever setting :
- Vicinity of 20 mm

Adjusting method :
1) Set to the MANUAL mode using the FOCUS switch (S801 on the CG-2 board).
2) Set the focus ring to the infinity side (∞ side).
3) Press the FOCUS switch.
4) Measure the time which elapses from the instant the FOCUS switch is pressed to the focus ring rotates and reaches the close side (1.2 m side).
5) Confirm that the measured value is within the specified value.

7-5. ELECTRONIC VIEW FINDER (EVF) SYSTEM ADJUSTMENT

7-5-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape : For operational checks (WR5-3NSP) Monoscope section
Specified Value	See Fig. 7-46.

Adjusting method :
1) By turning RV705 (BRIGHT), adjust for a luminance level that provides appropriate visibility of the picture tube.
2) Loosen the DY (deflection yoke) tightening band.
3) By turning DY, achieve a horizontal position of the image.
4) Position the DY rear end 52.5±0.3 mm away from the picture tube face plate.
5) Retighten the DY tightening band (exercising care against any excessive tightening).

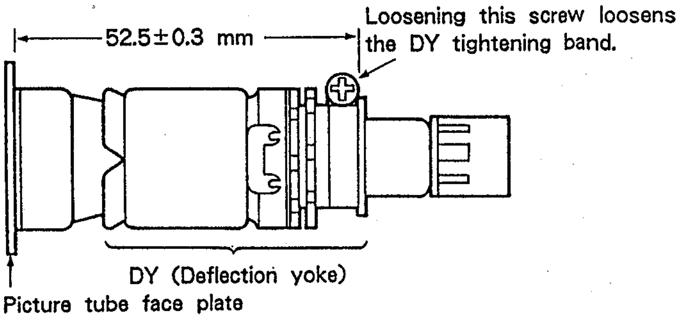
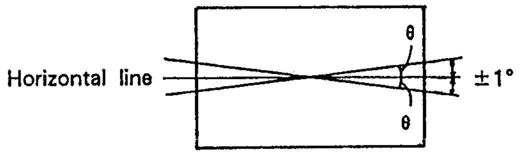


Fig. 7-45.



Specified value :
Image orientation to be within ±1° of horizontal line

Fig. 7-46.

7-5-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape : For operational checks (WR5-3NSP) Monoscope section
Specified Value	See Fig. 7-48.

Adjusting method :

1) By operating centering magnets, provide the image with even peripheral margins, both horizontally and vertically.

Note : Since the centering position is affected by the earth magnetism, turn the equipment over 360° horizontally, and make adjustments at the orientation that exhibits median displacements of the image.

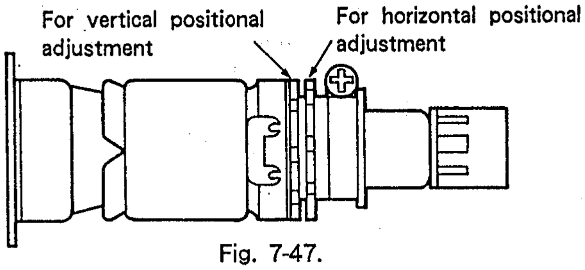

For vertical positional adjustment
For horizontal positional adjustment

Fig. 7-47.

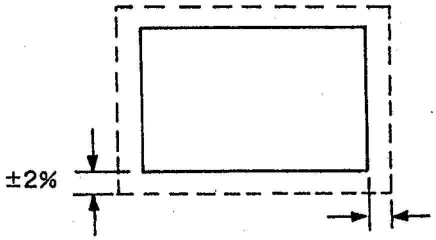


Fig. 7-48.

7-5-3. Horizontal Oscillating Frequency Adjustment (VF-7 Board)

Mode	Playback
Signal	Alignment tape : For operational checks (WR5-3NSP)
Measurement Point	Positive terminal of C708
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjusting Element	RV702
Specified Value	2.65±0.1 Vdc

Adjusting method :

1) By turning RV702, adjust for a 2.65±0.1 Vdc terminal voltage.

7-5-4. Horizontal Amplitude Adjustment (VF-7 Board)

Mode	Playback
Signal	Alignment tape : For operational checks (WR5-3NSP) Monoscope section
Adjusting Element	C718, C719
Specified Value	6±3%

Adjusting method :

1) By turning RV704, focus the image.
2) By turning RV701, align upper and lower edges of the monoscope image with those of the screen.
3) By turning RV705, attain a normal brightness level.
4) To achieve 6±3% horizontal overscans (half side), short-circuit or open the patterns (A and B) for H size adjusting capacitors (C718 and C719), one at a time until the overscan level is achieved.(See Fig. 7-50.)

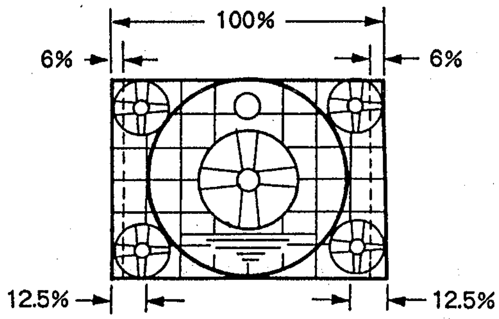
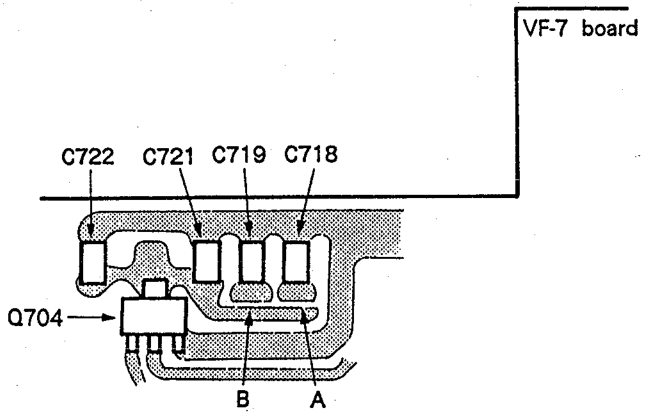


Fig. 7-49.



A	B	H size
Open	Open	Small
Short-circuit	Open	↓
Open	Short-circuit	
Short-circuit	Short-circuit	Large

Fig. 7-50.

7-5-5. Vertical Amplitude Adjustment (VF-7 Board)

Mode	Playback
Signal	Alignment tape : For operational checks (WR5-3NSP) Monoscope section
Adjusting Element	RV701
Specified Value	6±3%

Adjusting method :

1) By turning RV701, adjust for 6±3% vertical overscans (half side).

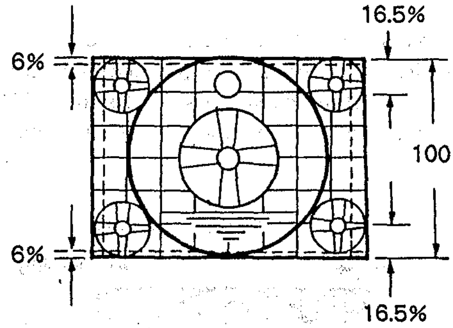


Fig. 7-51.

7-5-6. Brightness, Contrast Adjustments (VF-7 Board)

Mode	Playback
Signal	Alignment tape : For operational checks (WR5-3NSP) Monoscope section
Adjusting Element	Brightness : RV705 Contrast : RV703

Adjusting method :

1) By turning RV705 and RV703 alternately, adjust for the valid display of light and dark areas of a gray scale. (The light area should not be made light enough for a fuzzy display of cross-hatches within the monoscopic circle, be sure to maintain the brightness of the dark area in a degree in which discrimination between the darkest area and second darkest area can scarcely be made.)

7-5-7. Focus Adjustment (VF-7 Board)

Mode	Playback
Signal	Alignment tape : For operational checks (WR5-3NSP) Monoscope section
Adjusting Element	RV704

Adjusting method :

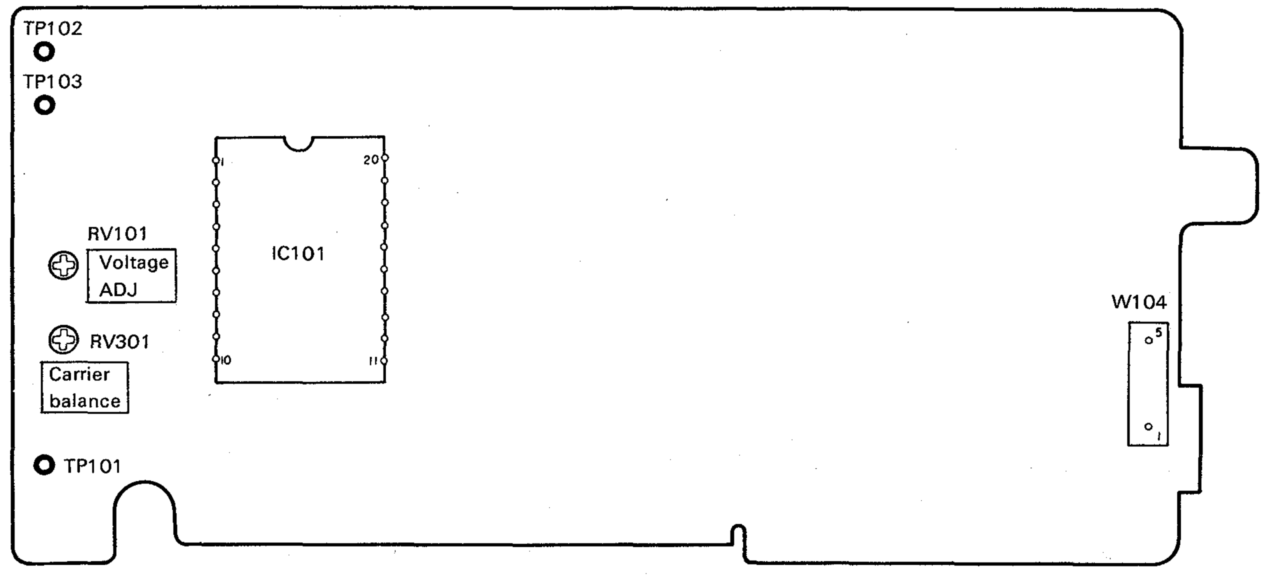
1) By turning RV704, adjust for the optimally focused images.

7-5-8. Horizontal and Vertical Amplitude Checks

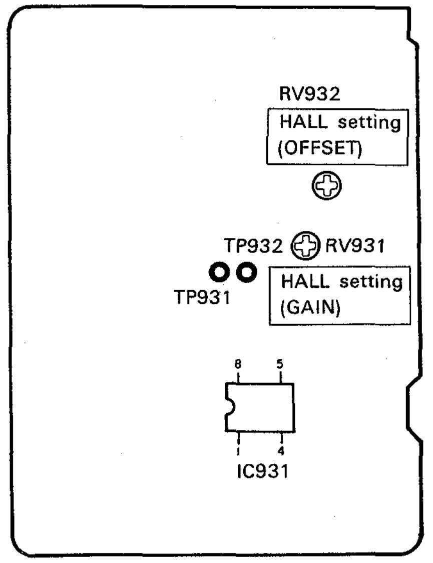
Specifications should have been met by "7-5-4. Horizontal amplitude adjustment" and "7-5-5. Vertical amplitude adjustment", but if they are not, readjustments should be made. In the latter case, "7-5-6. Brightness, contrast adjustments" and "7-5-7. Focusing adjustment" should also be made over again.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

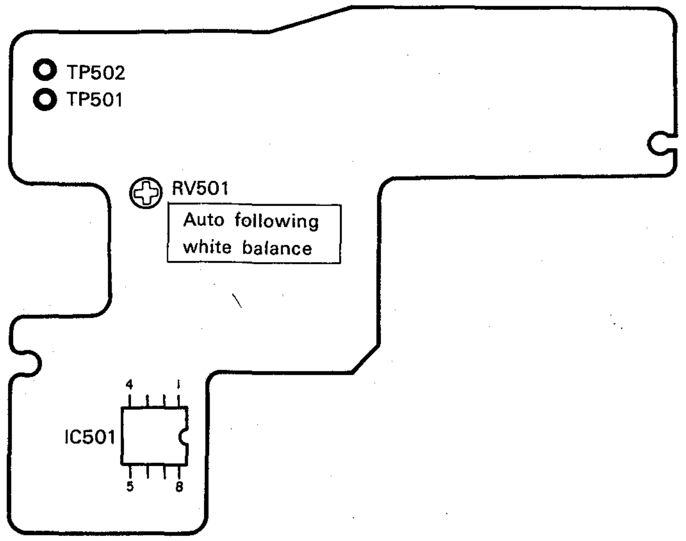
VC-36 BOARD (COMPONENT SIDE)


TP102
TP103
IC101
RV101
Voltage ADJ
RV301
Carrier balance
TP101
W104

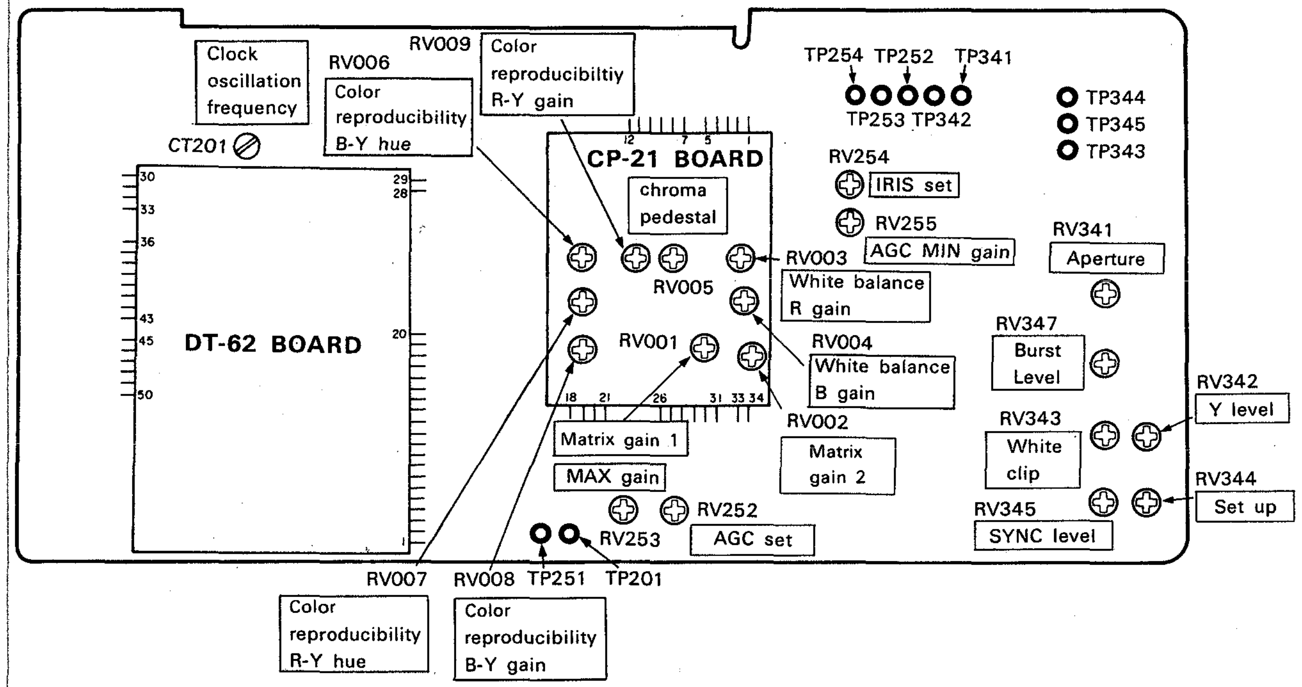
ZM-6 BOARD (COMPONENT SIDE)


RV932
HALL setting (OFFSET)
TP932
RV931
TP931
HALL setting (GAIN)
IC931

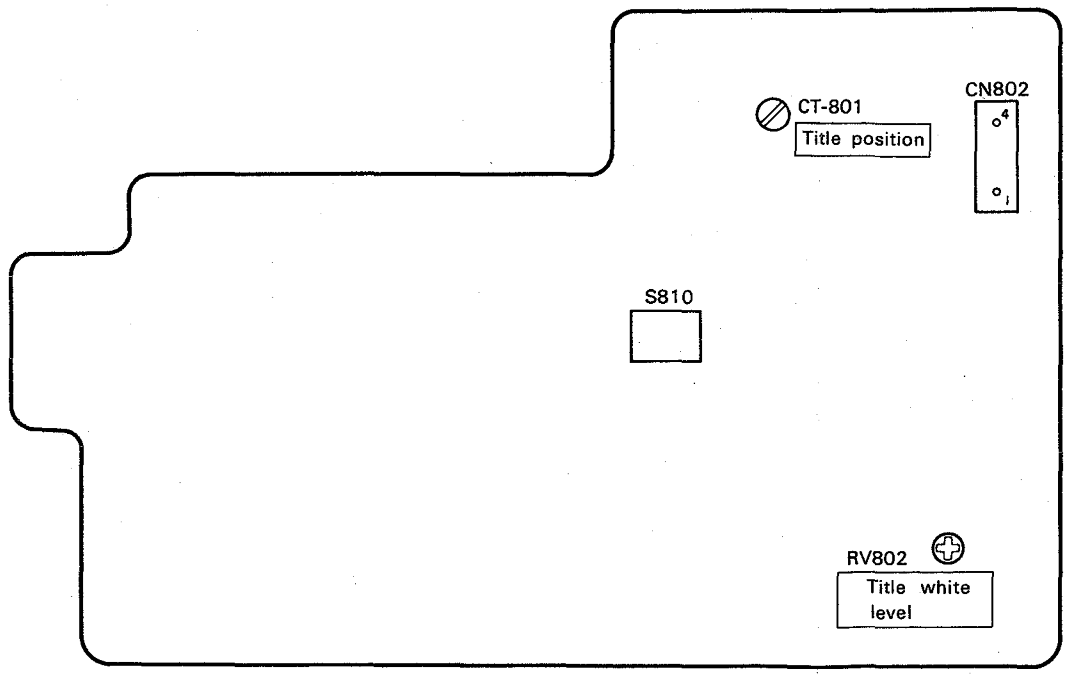
AW-10 BOARD (COMPONENT SIDE)


TP502
TP501
RV501
Auto following white balance
IC501

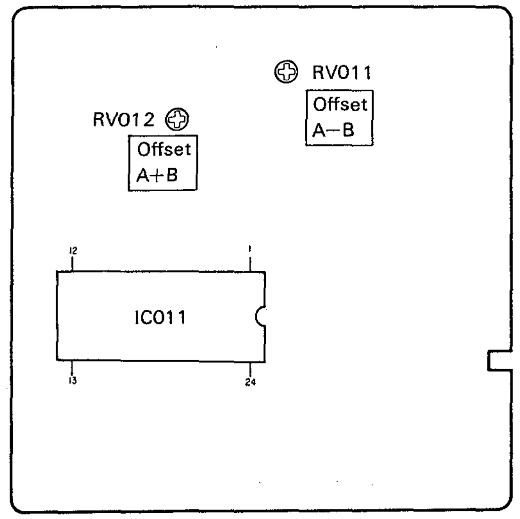
VC-37 BOARD (COMPONENT SIDE)


Clock oscillation frequency
RV006
Color reproducibility B-Y hue
RV009
Color reproducibiltiy R-Y gain
CT201
DT-62 BOARD
CP-21 BOARD
chroma pedestal
TP254 TP252 TP341
TP253 TP342
TP344
TP345
TP343
RV254
IRIS set
RV255
AGC MIN gain
RV341
Aperture
RV003
White balance R gain
RV005
RV001
RV004
White balance B gain
RV347
Burst Level
RV342
Y level
RV002
Matrix gain 2
Matrix gain 1
MAX gain
RV343
White clip
RV344
Set up
RV252
AGC set
RV253
RV345
SYNC level
RV007
RV008
TP251
TP201
Color reproducibility R-Y hue
Color reproducibility B-Y gain

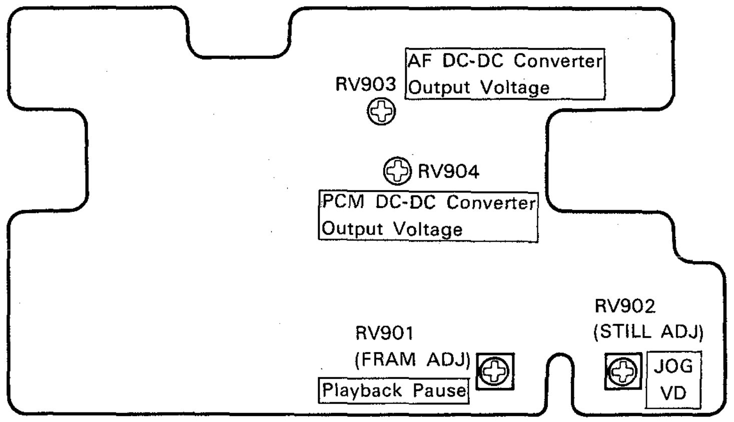
CG-2 BOARD (COMPONENT SIDE)


CT-801
Title position
CN802
S810
RV802
Title white level

AF-43 BOARD (COMPONENT SIDE)


RV011
Offset
A–B
RV012
Offset
A+B
12
1
IC011
13
24

CC-13 BOARD (COMPONENT SIDE)


RV903
AF DC-DC Converter
Output Voltage
RV904
PCM DC-DC Converter
Output Voltage
RV901
(FRAM ADJ)
Playback Pause
RV902
(STILL ADJ)
JOG
VD

SECTION 8
MECHANICAL ADJUSTMENTS

8-1. PREPARATION ITEMS FOR MECHANISM SECTION CHECKING, ADJUSTMENT AND REPLACEMENT

Note : Regarding removal of cabinet and respective boards, see Section 2. DISASSEMBLY.

8-1-1. Mounting of Cassette Compartment Assembly (See Fig. 8-1a)

1) Mount DEW assembly ❶ with screw ❷.
2) Mount the cassette compartment assembly ❸ refer to Fig. 8-1a, and tighten the four screws ❹ in the order shown in Fig. 8-1b.
(At this point, care should be taken not to hit cassette compartment assembly ❸, so set the eject disk ❺ in the direction of arrow.)
3) Hook the harness on claw ❻.
4) Mount leaf switch ❼ with screw ❽.
5) See Section 2. DISASSEMBLY 2-11, and mount the DR-45 board.
6) See Section 2. DISASSEMBLY 2-9, and mount the AU-45 board and the TS-80 board.

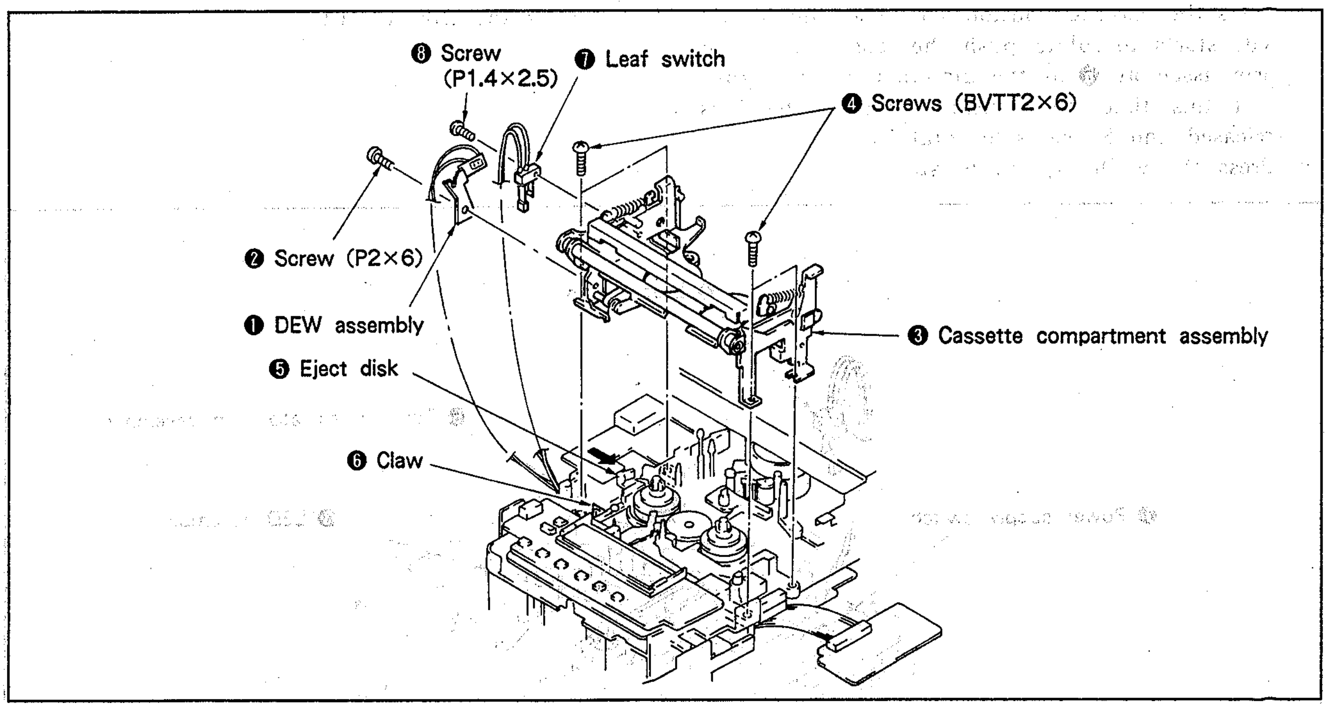

❽ Screw (P1.4×2.5)
❼ Leaf switch
❹ Screws (BVTT2×6)
❷ Screw (P2×6)
❶ DEW assembly
❺ Eject disk
❸ Cassette compartment assembly
❻ Claw

Fig. 8-1a.

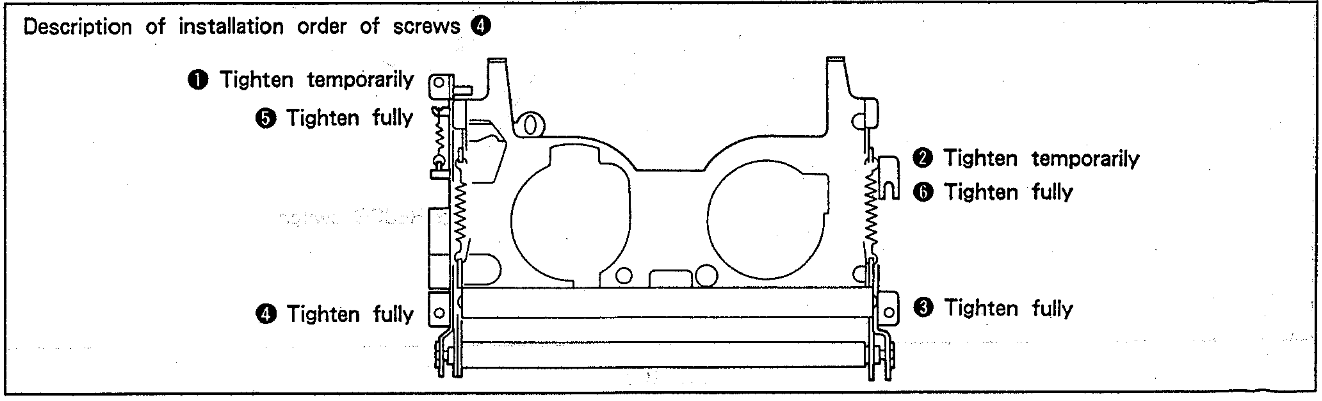

Description of installation order of screws ❹
❶ Tighten temporarily
❺ Tighten fully
❷ Tighten temporarily
❻ Tighten fully
❹ Tighten fully
❸ Tighten fully

Fig. 8-1b.

8-1-2. Cassette Compartment Assembly and Operation without Tape Inserted

Note : The set will not operate if there is a strong light source near it.

1. Loading (See Fig. 8-2.)

1) Mount a battely pack and turn ON power supply switch ❶.
2) Fix the two pins of the RECOG SW ❷ in pushed in position by applying adhesive tape.
3) Cover the LED assembly ❸ with a non-transparent cap etc.
4) Turn on the leaf switch ❹.

2. Putting into playback state (See Fig. 8-2.)

1) Mount a battely pack and turn ON power supply switch ❶.
2) Hook the rubber band ❺ between S reel and T reel.
3) Press the playback button, and when the T reel side starts to rotate, push the tension regulator arm assembly ❻ in the direction of the arrow. (At this time, the tension regulator band is released and S reel side rotates.)
4) Press the STOP button to stop.

3. Putting into recording state (See Fig. 8-2.)

1) Mount a battely pack and turn ON power supply switch ❶.
2) Hook the rubber band ❺ between S reel and T reel.
3) Press the recording button, and when the T reel starts to rotate, push the tension regulator arm assembly ❻ in the direetion of the arrow. (At this time, the tension regulator band is released and S reel rotates.)
4) Press the STOP button to stop.

4. Eject (See Fig. 8-2)

1) Press the EJECT button.

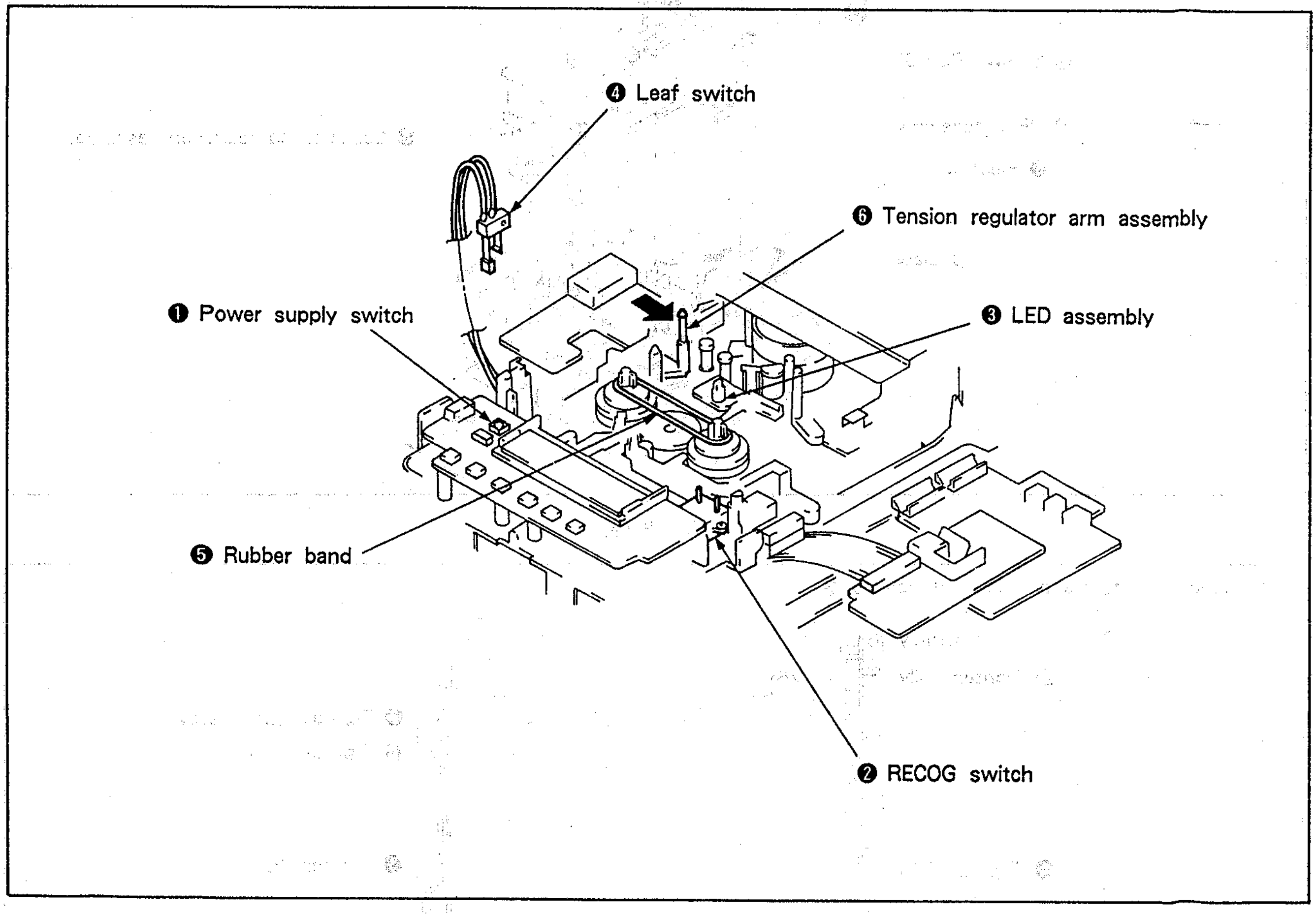


Fig. 8-2.

8-1-3. Handling of Mode Selector

1. Name of individual parts (Exterior)

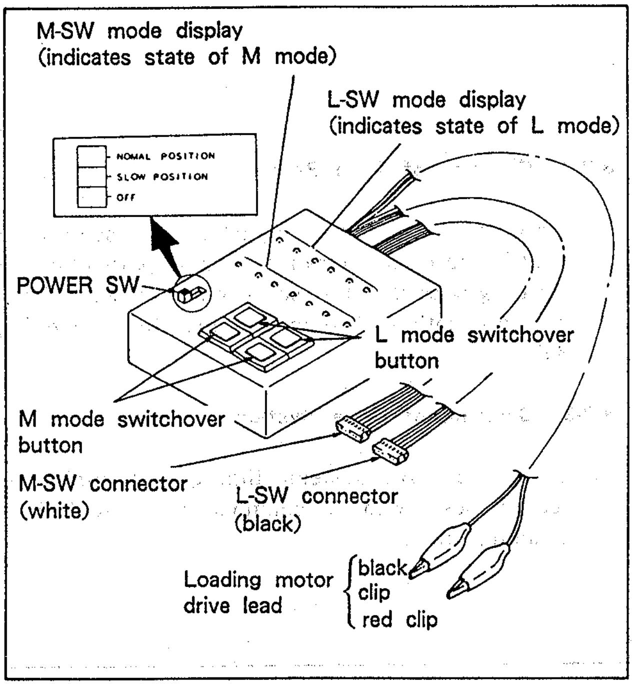

M-SW mode display
(indicates state of M mode)
L-SW mode display
(indicates state of L mode)
NOMAL POSITION
SLOW POSITION
OFF
POWER SW
L mode switchover button
M mode switchover button
M-SW connector (white)
L-SW connector (black)
Loading motor drive lead
black clip
red clip

Fig. 8-3.

2. Connection (See Fig. 8-4.)

1) Insert the M-SW connector (6P connector, 6 harness, white) into the MS-4 board (CN905) on the set.
2) Insert the L-SW connector (6P connector, 4 harness, black) into the LS-9 board (CN904) on the set.
3) Connect the red clip of the loading motor drive lead to the red lead wire side of the loading motor and the black clip to the gray lead wire side. (See Figs. 8-3. and 8-4.)

3. Caution

1) When operating L-SW, be sure to set the M-SW mode to LOADING/UNLOADING.
2) When operating M-SW, be sure to set the L-SW mode to LOADING TOP or LOADING END.

4. Handling

BLANK lights up regardless of L MODE or M MODE when it is in neither mode during select.

1) L-MODE
   - When the right L-MODE switch button is pressed continuously, the display lights up from LOADING TOP → LOADING END, in order in right direction.
   - To go from LOADING END → LOADING TOP, press the left switch button continuously until the desired MODE is reached.
   - In slow position, the L mode operates more slowly than for normal position.
2) M-MODE
   - Set L-SW to LOADING TOP before performing EJECT.
   - Set L-SW to LOADING END to perform FF/REW → RVS or RVS → FF/REW.
   - When the right M-MODE switch button is pressed continuously, the display lights up from EJECT → RVS, in order in right direction.
   - To go from RVS → EJECT, press the left switch button continuously until the desired MODE is reached.

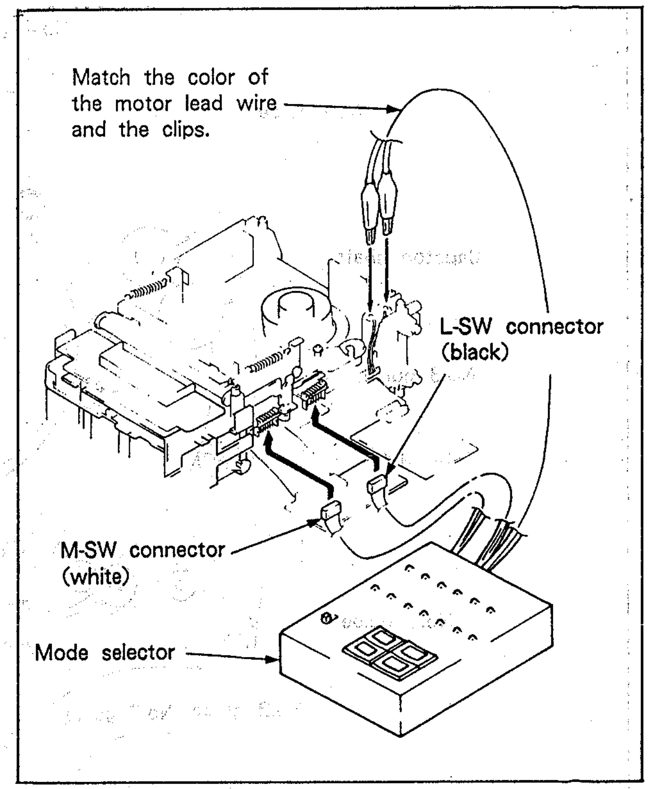

Match the color of the motor lead wire and the clips.
L-SW connector (black)
M-SW connector (white)
Mode selector

Fig. 8-4.

8-2. PERIODIC CHECK AND MAINTENANCE

Please perform the following periodic checks and maintenence in order to obtain optimum set function and performance, and to keep the mechanism and tape in good condition. Also, perform the maintenance below after repair, regardless of the length of time the set has been used by the user.

8-2-1. Cleaning of Rotary Drum Assembly

1) Press a chamois cloth (Ref. No. J-2) soaked in cleaning fluid (Ref. No. J-1) lightly against the rotary drum assembly, and slowly turn the rotary upper drum assembly counterclockwise by hand to clean.

Note : Do not use the power supply to rotate the motor, and do not rotate the motor clockwise by hand.
Also, there is a danger of damaging the head tip if the chamois cloth is moved vertically relative to the head tip (up/down direction of drum), so please follow the instruction above for cleaning.

8-2-2. Cleaning of Tape Path

1) Place the cassette compartment assembly in EJECT state, and clean the tape path (No.1 to No.11 guides, capstan shaft, pinch roller) with a chamois cloth soaked in cleaning fluid. (See Fig. 8-5.)

8-2-3. Cleaning of Drive System

1) Clean the drive system (timing belt, surface of reel tables) with a chamois cloth soaked in cleaning fluid.

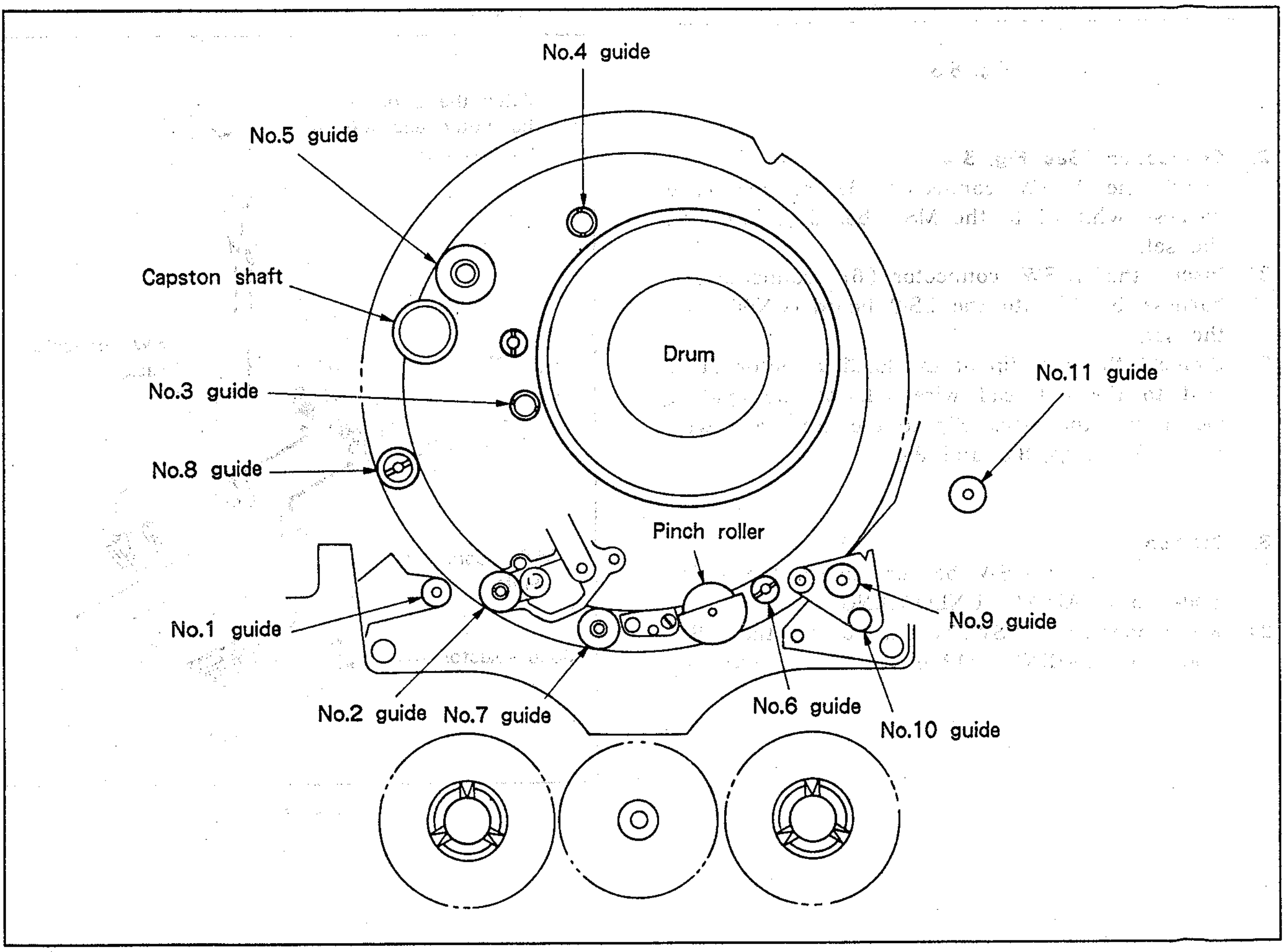

No.4 guide
No.5 guide
Capston shaft
Drum
No.11 guide
No.3 guide
No.8 guide
Pinch roller
No.1 guide
No.9 guide
No.2 guide
No.7 guide
No.6 guide
No.10 guide

Fig. 8-5.

8-2-4. Periodic Check

Perform following according to number of hours of use.

○Cleaning ◎Lublication ★Replacement ☆Check

Location		Hours of Use (H)										Notes
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Path	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of oil
	Cleaning and degaussing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Drive System	L motor belt	○	○	○	○	○	○	○	★	○	○	3-686-546-01 Replace here, or replace every two years.
	Timing belt	○	○	○	○	○	○	○	○	○	○	3-686-646-01
	Planger solenoid	–	–	–	○	–	–	–	○	–	–	1-454-377-11
	Capstan shaft bearing	–	◎	–	◎	–	◎	–	◎	–	◎	Be careful not to get oil on the tape path surface.
	Loading motor	–	☆	–	☆	–	☆	–	☆	–	☆	A-7040-031-A
	Control motor	–	☆	–	☆	–	☆	–	☆	–	☆	8-835-110-01
Performance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	–	☆	–	☆	–	☆	–	☆	–	☆	
	Brake system	–	☆	–	☆	–	☆	–	☆	–	☆	
	FWD, RVS torque measurement	–	☆	–	☆	–	☆	–	☆	–	☆	

Note : When performing an overhaul, refer to the items above when replacing parts.

Note : Regarding oil

- Be sure to use designated oil. (There is a danger of trouble occurring if a different viscosity is used.)
  Oil : Parts No.7-661-018-18
  (Mitsubishi Diamond Oil hydrofluid NT-68)
- Be sure to use clean oil when lubricating the shaft bearing, because there is a danger of wear and burning if dirty oil is used.
- One drop of oil means the amount which sticks to a 2 mm diameter rod, as shown in Fig. (See Fig. 8-6.)

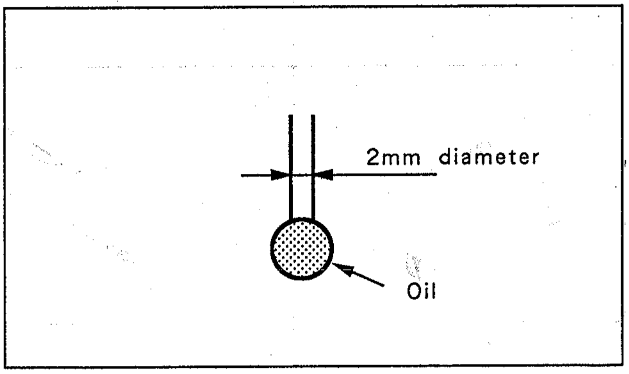


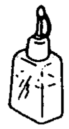
Fig. 8-6.

8-2-5. Service Jig Table

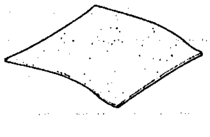
Ref. No.	Name	Part No.	Jig	Use Notes
J-1	Cleaning fluid	Y-2031-001-1		
J-2	Chamois cloth	2-034-697-00		
J-3	Head degausser	Commercially sold		
J-4	Small adjustment mirror, Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape (WR5-1N)	8-967-995-01		Tape path
J-6	Dial tension gauge	J-6080-827-A		Various torque measurements
J-7	Tension measurement reel	J-6080-831-A		with ϕ 30 tape
J-8	Tension measurement reel	J-6080-832-A		with ϕ 16 string
J-9	No.10 gear phase jig	J-6080-823-A	GD-2047	
J-10	Rotary drum jig	(packed with the rotary upper drum for repair)		
J-11	No.6 guide lock screwdriver	J-6080-826-A		
J-12	FWD, RVS winding torque cassette	J-6080-824-A	GD-2086	
J-13	Mode selector	J-6080-825-A		for all models
J-14	Track shift jig	J-6080-891-A		Tape path
J-15	RF/SWP connector connecting cord	J-6080-843-3		Tape path
J-16	CTL connector connecting cord	J-6080-859-A		Tape path

Other equipment :
- Oscilloscope
- Analog tester (20k Ω)

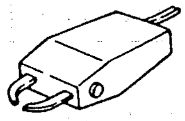
J-1



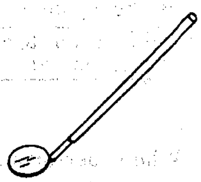
J-2



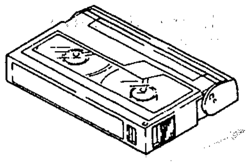
J-3



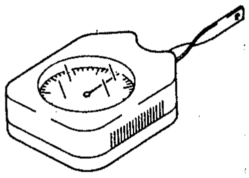
J-4



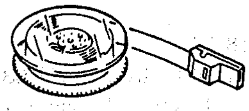
J-5



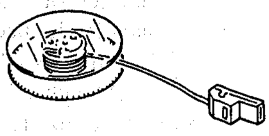
J-6



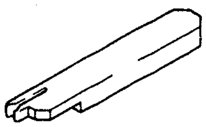
J-7



J-8

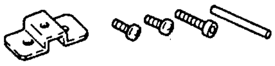


J-9

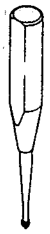


J-10

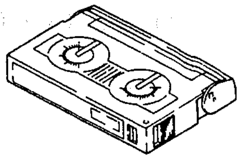
(Packed with the rotary upper drum for repair)



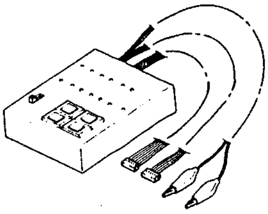
J-11



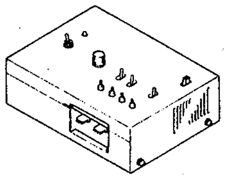
J-12



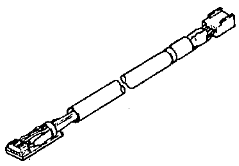
J-13



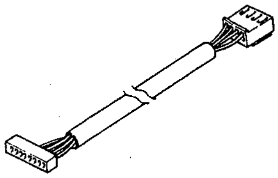
J-14



J-15



J-16



8-3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note :
- Use the mode selector (Ref. No. J-13) for this mechanical check, adjustment and replacement.
- The mode inside the ☐ is the mode set by pressing the mode selector button.

8-3-1. S Reel Table Assembly

1. Removal (See Fig. 8-7.)

1) Remove the cassette compartment assembly according to Section 2. DISASSEMBLY 2-12.
2) Set to FF∕REW mode.
3) Remove screw ❶ and remove reel table stopper ❷.
4) Remove the REV brake assembly ❸.
5) Remove the S reel table assembly ❹.
   Note : Be sure to hold the upper reel claw section when removing. (See Fig. 8-7.(Note))

2. Mounting (See Fig. 8-7.)

1) Put a half drop of oil on the upper point of shaft ❺.
2) Move the S main brake assembly ❻ in the direction of arrow.
3) Mount the S reel table assembly ❹, being careful not to hit the tension regulator band assembly ❼.
4) Mount the REV brake assembly ❸.
5) Mount the reel table stopper ❷ and tighten with screw ❶.
6) Set to LOADING∕UNLOADING mode.
7) Mount the cassette compartment assembly according to 8-1-1.
8) Perform 8-3-21. FWD Back Tension Adjustment.

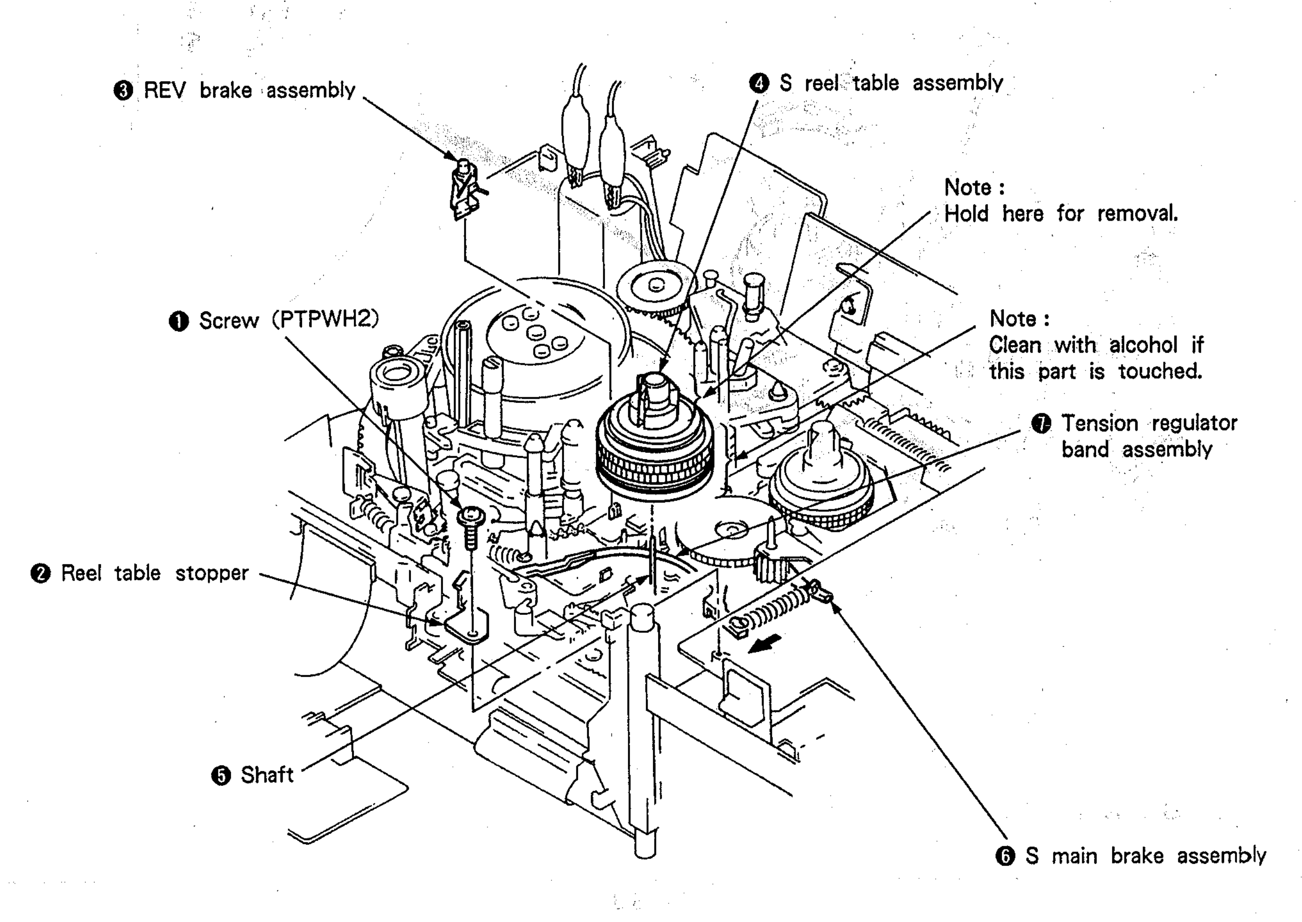

❸ REV brake assembly
❹ S reel table assembly
Note :
Hold here for removal.
❶ Screw (PTPWH2)
Note :
Clean with alcohol if this part is touched.
❼ Tension regulator band assembly
❷ Reel table stopper
❺ Shaft
❻ S main brake assembly

Fig. 8-7.

8-3-2. T Reel Table Assembly

1. Removal (See Fig. 8-8.)

1) Remove the cassette compartment assembly according to Section 2. DISASSEMBLY 2-12.
2) Set to UNLOADING WAIT mode.
3) Hook the spring ❷ on the T.S brake assembly ❶ to the claw of lock slider.
4) Remove the stopper washer ❸ and remove the T.S brake assembly ❶.
5) Set to EJECT mode.
6) Move drive gear B assembly ❹ in the direction of the arrow.
7) Remove T reel table assembly ❺.

   Note : Be sure to hold the upper reel claw section when removing. (See Fig. 8-7. (Note))

2. Mounting (See Fig. 8-8.)

1) Put a half drop of oil on the upper point of shaft ❻.
2) Move the drive gear B assembly ❹ in the direction of the arrow. (Confirm EJECT mode.)
3) Mount the T reel table assembly ❺.
4) Mount the T.S brake assembly ❶ and fix the stopper washer ❸.
5) Hook the spring ❷ on the T.S brake assembly ❶ claw.
6) Set to LOADING TOP , LOADING/UNLOADING mode.
7) Mount the cassette compartment assembly according to 8-1-1.

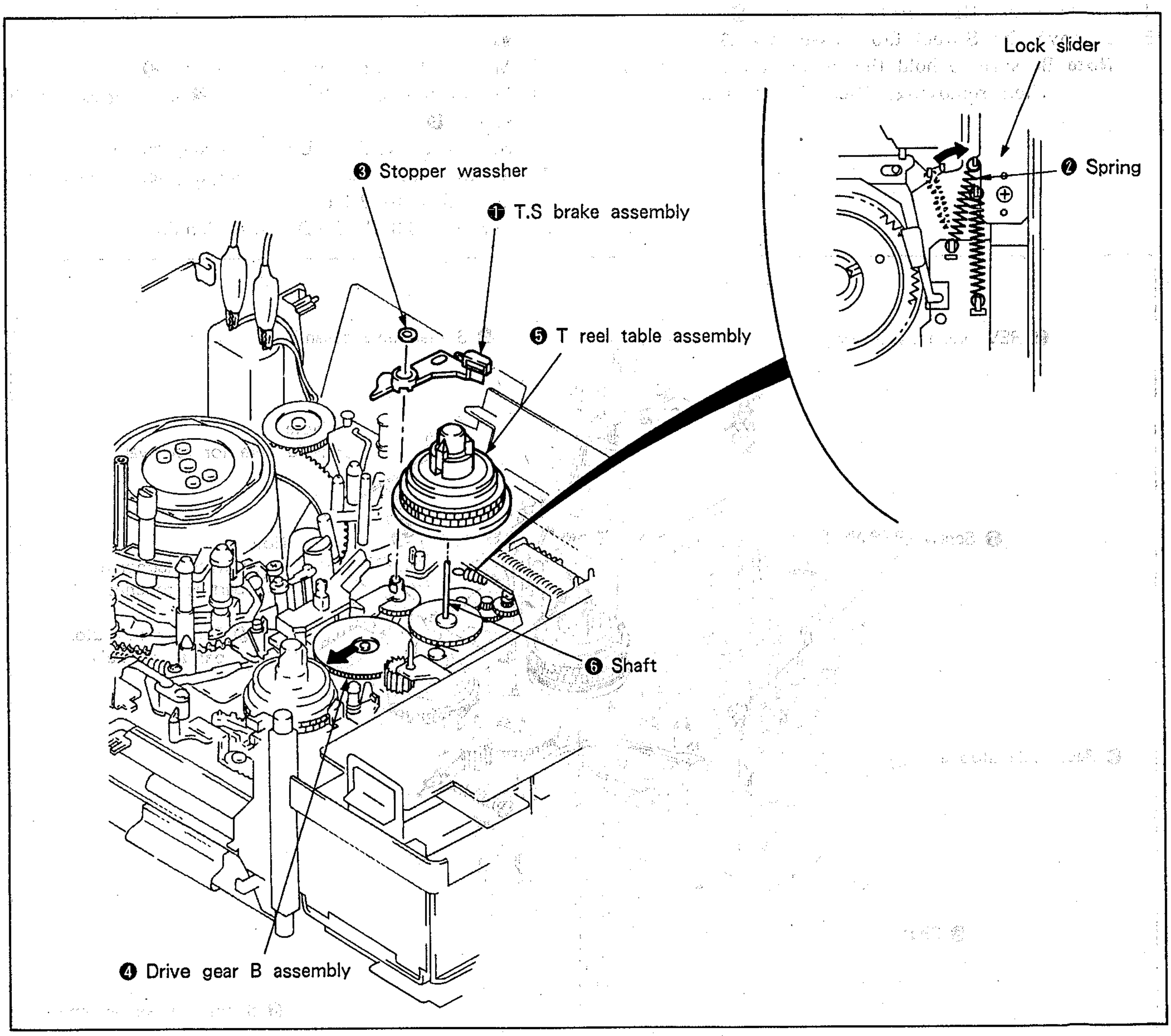

Lock slider
❷ Spring
❸ Stopper wassher
❶ T.S brake assembly
❺ T reel table assembly
❻ Shaft
❹ Drive gear B assembly

Fig. 8-8.

8-3-3. Pinch Press Arm Assembly

1. Removal (See Fig. 8-9.)

1) Hook the spring ❶ on the pinch press arm assembly ❷.
2) Remove the stopper washer ❸ and remove the pinch press arm assembly ❷.

2. Mounting (See Fig. 8-9.)

1) Put a half drop of oil on the shaft ❹.
2) Mount the pinch press arm assembly ❷ and fix the stopper washer ❸.
3) Hook the spring ❶ on the spring hook assembly ❺.

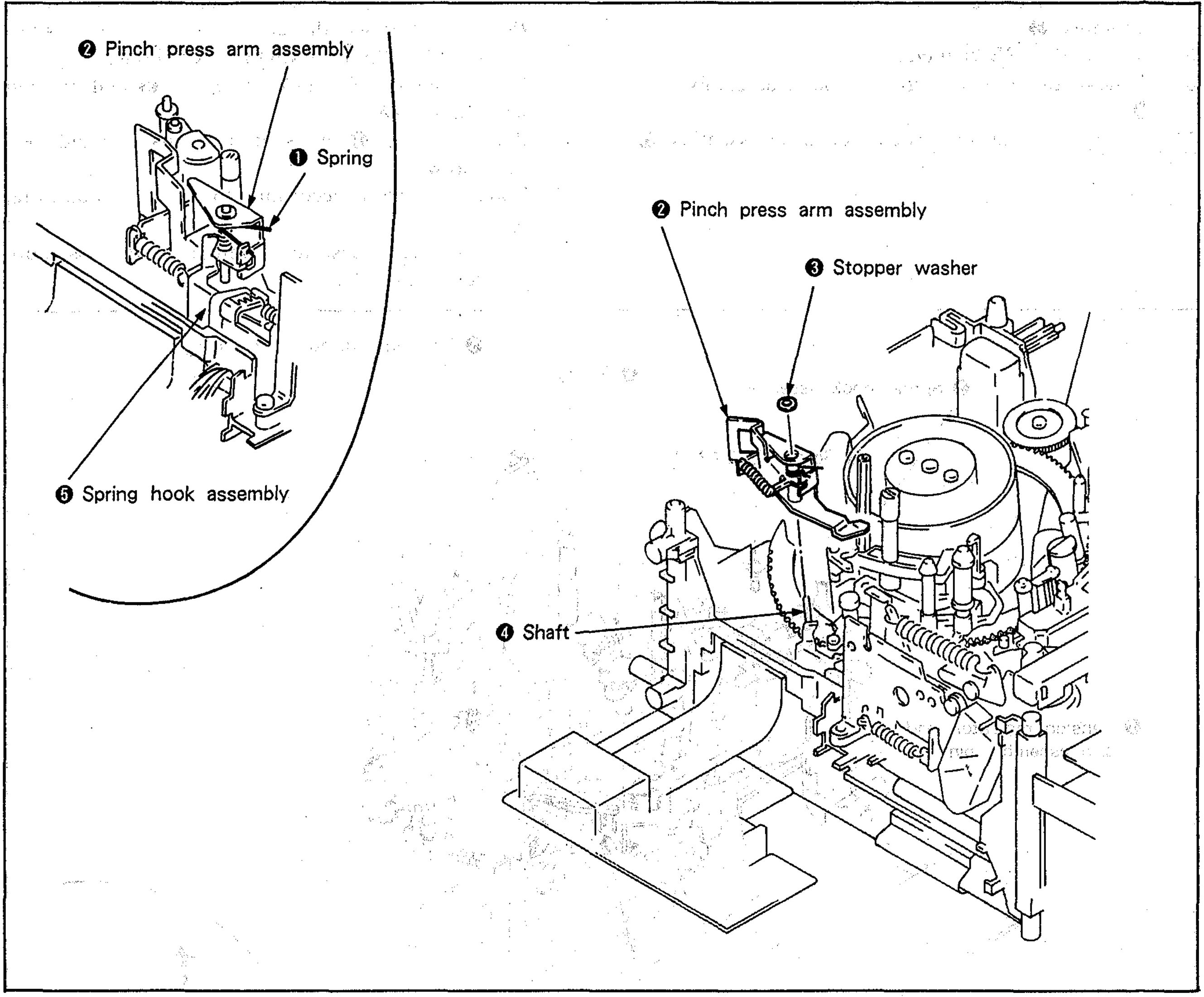

❷ Pinch press arm assembly
❶ Spring
❺ Spring hook assembly
❷ Pinch press arm assembly
❸ Stopper washer
❹ Shaft

Fig. 8-9.

8-3-4. Tension Regulator Arm Assembly

1. Removal (See Fig. 8-10.)

1) Remove the cassette compartment assembly according to Section 2. DISASSEMBLY 2-12.
2) Change the spring position as described in 8-3-3. 1. Removal, 1). (See Fig. 8-9.)
3) Remove spring ❶. (Note its hooking position.)
4) Remove screw ❷ and remove the spring hook assembly ❸.
5) Set to FF/REW mode.
6) Remove the tension regulator band assembly claw ❹.
7) Remove the tension regulator arm assembly ❺.

2. Mounting (See Fig. 8-10.)

1) Put a half drop of oil on the shaft ❻.
2) Mount the tension regulator arm assembly ❺, inserting the tension regulator load arm assembly pin ❼ in the tension regulator arm assembly ❺ cam groove (on the back).
3) Mount the tension regulator band assembly claw ❹. (Do not touch the band or change its shape.)
4) Set to LOADING/UNLOADING mode.
5) Mount the spring hook assembly ❸ and tighten with screw ❷.
6) Replace spring ❶ in its original position and lock the screw.
7) Hook the spring according to 8-3-3. 2. Mounting, 3).
8) Mount the cassette compartment assembly according to 8-1-1.

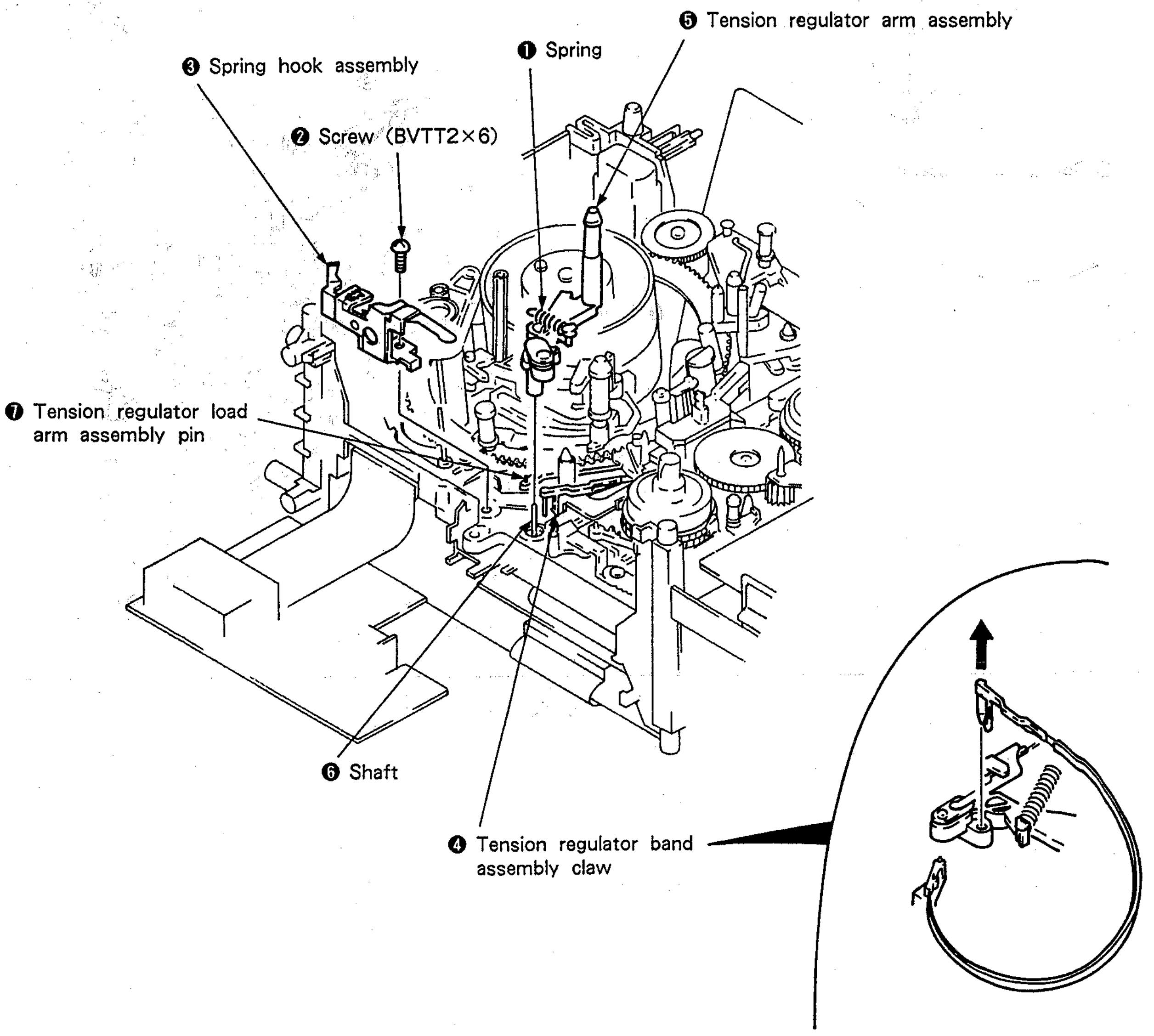

❺ Tension regulator arm assembly
❶ Spring
❸ Spring hook assembly
❷ Screw (BVTT2×6)
❼ Tension regulator load arm assembly pin
❻ Shaft
❹ Tension regulator band assembly claw

Fig. 8-10.

8-3-5. Tension Regulator Band Assembly

1. Removal (See Fig. 8-11.)

1) Remove the S reel table assembly according to 8-3-1. 1. Removal. (See Fig. 8-7.)
2) Remove the band arm claw ❶.
3) Remove claw ❷ and remove the tension regulator band assembly ❸.

2. Mounting (See Fig. 8-11.)

1) Mount the tension regulator band assembly ❸. (Do not touch the band or change its shape.)
2) Fit on the band arm claw ❶.
3) Mount the S reel table assembly according to 8-3-1. 2. Mounting.(See Fig. 8-7.)
4) Perform 8-3-21. FWD Back Tension Adjustment.

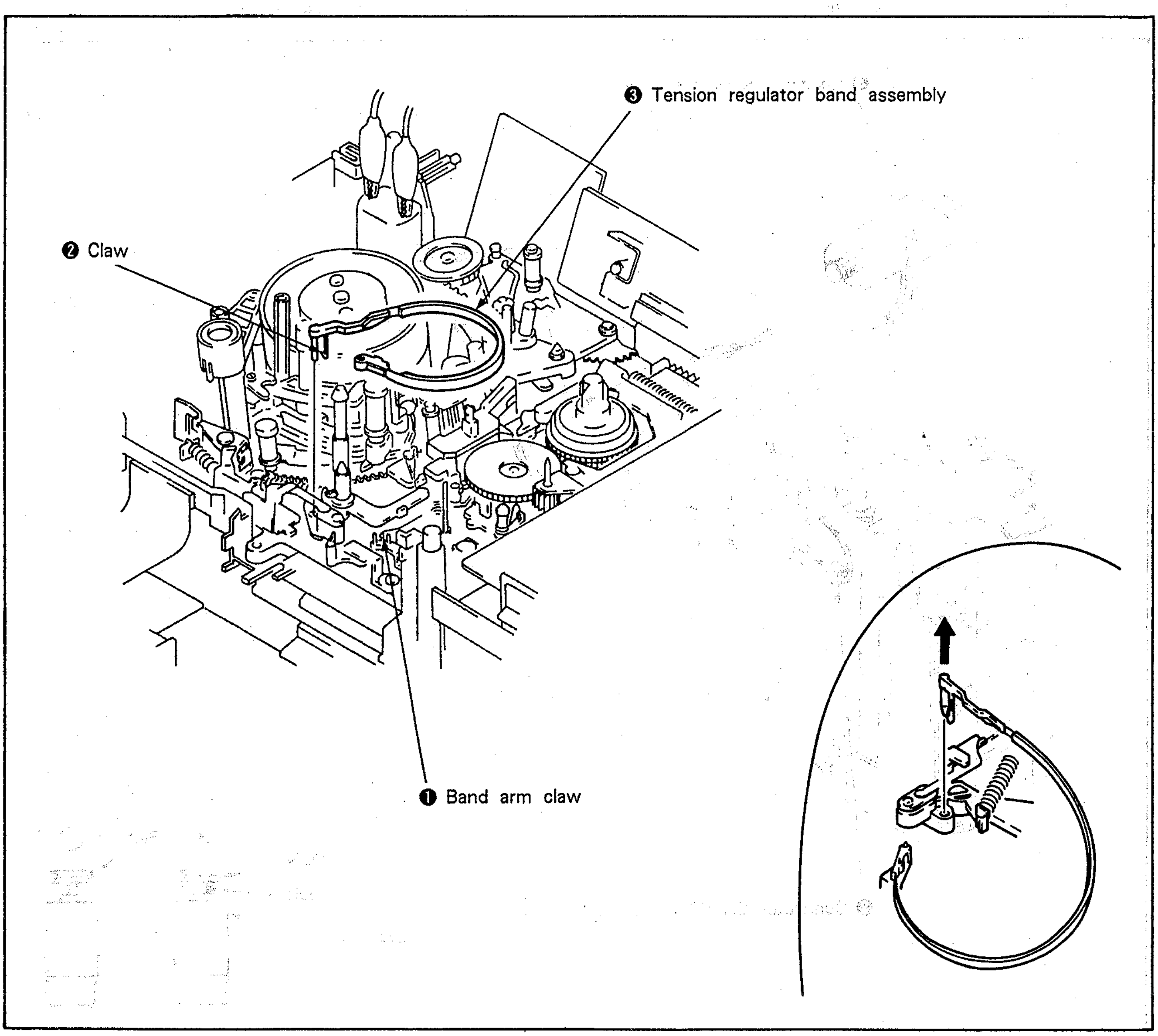

❸ Tension regulator band assembly
❷ Claw
❶ Band arm claw

Fig. 8-11.

8-3-6. Loading Motor Assembly

1. Removal (See Fig. 8-12.)

1) Open the SS-83 board according to Section 2. DISASSEMBLY 2-14.
2) Remove L motor belt ❶.
3) Remove the CN302 connector (white) 2P ❷ from the RS-18 board.
4) Remove the two screws ❸ and remove the loading motor assembly ❹.

2. Mounting (See Fig. 8-12.)

1) Mount the loading motor assembly ❹ and tighten with the two screws ❸.
2) Connect CN302 connector (white) 2P ❷ to RS-18 board.
3) Mount L motor belt ❶.
4) Mount each board in opposite procedure of Section 2. DISASSEMBLY 2-14.

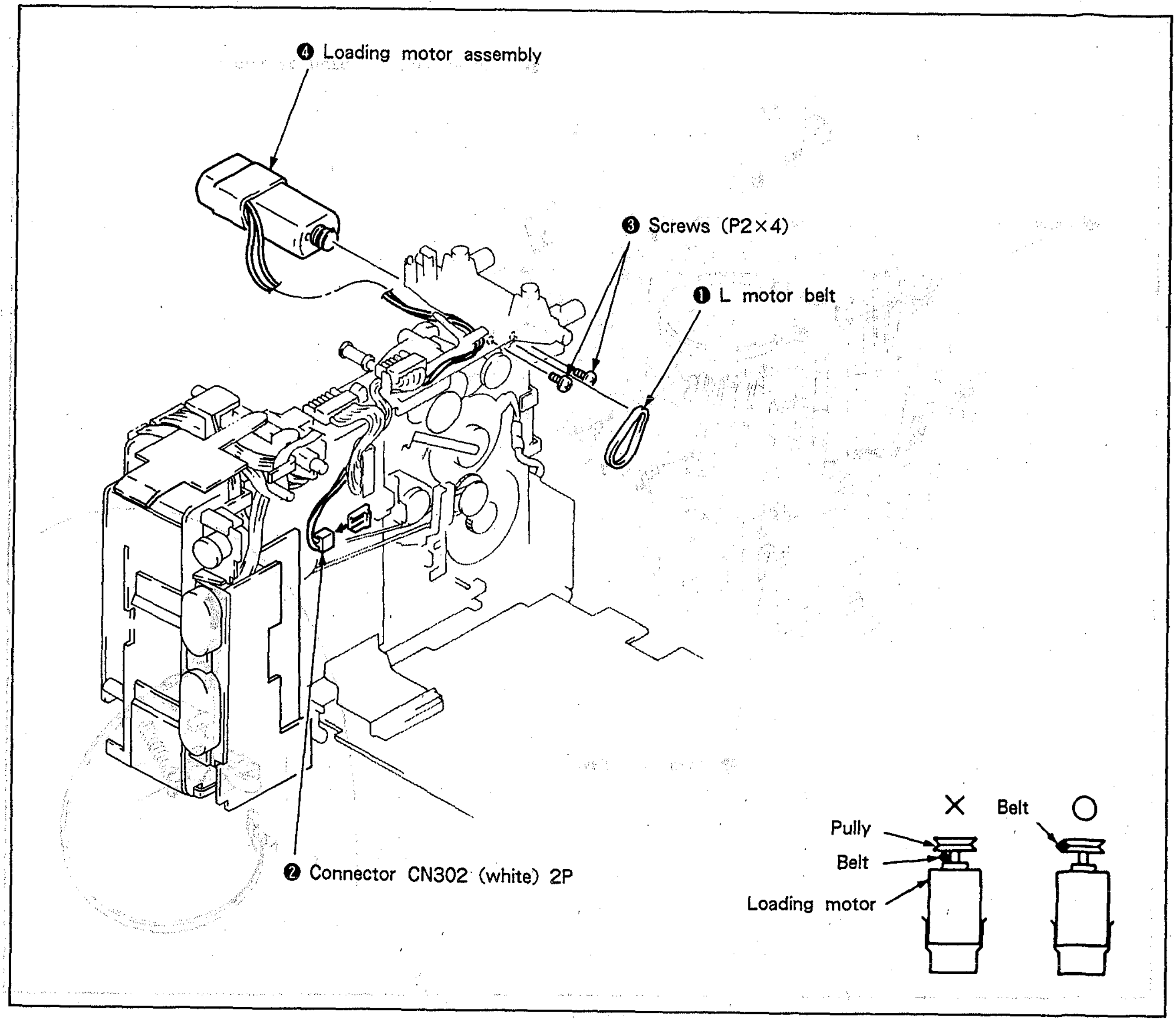

❹ Loading motor assembly
❸ Screws (P2×4)
❶ L motor belt
❷ Connector CN302 (white) 2P
×
Belt
○
Pully
Belt
Loading motor

Fig. 8-12.

8-3-7. Threading Ring Assembly

1. Removal (See Fig. 8-13.)

1) Operate the mode selector, and move the guide base assembly ❶ until just before it locks, and the No.2 guide assembly ❷ until just before it locks where the ring stopper ❸ screw is visible. (Do not move threading ring assembly ⓫.)
2) Remove the stopper washer ❹ and remove No.10 gear ❺.
3) Remove screw ❻, and remove the roller stop plate ❼ and ring roller ❽.
4) Remove the two screws ❾, and remove the ring stopper ❸ and ring roller ❿.
5) Remove the threading ring assembly ⓫ in the direction of arrow.

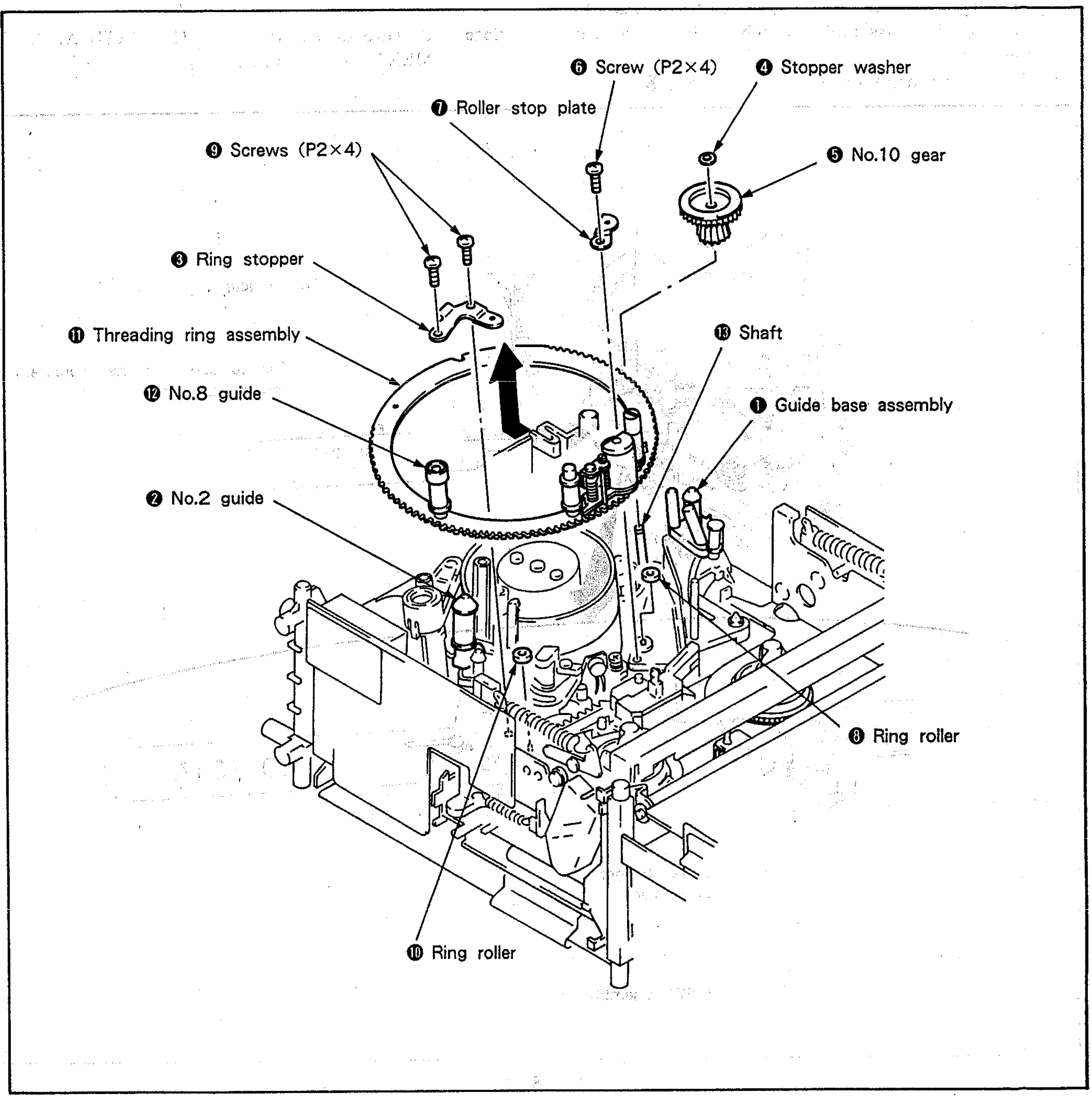

❻ Screw (P2×4)
❹ Stopper washer
❼ Roller stop plate
❾ Screws (P2×4)
❺ No.10 gear
❸ Ring stopper
⓫ Threading ring assembly
⓭ Shaft
⓬ No.8 guide
❶ Guide base assembly
❷ No.2 guide
❽ Ring roller
❿ Ring roller

Fig. 8-13.

2. Mounting (See Fig. 8-13.)

1) Mount the threading ring assembly ⓫ so that it becomes in the unthreaded state (pinch roller arm assembly is on the front panel side.) (Confirm that it is in the state in Removal, 1).)
2) Mount the ring roller ❿ and ring stopper ❸ and tighten with the two screws ❾. (No.8 guide ⓬ should be closer to the front panel than the ring stopper ❸.)
3) Mount the ring roller ❽ and roller stop plate ❼ and tighten with screw ❻. (Confirm that the loading ring assembly matches the three ring rollers.)
4) Put a half drop of oil on the shaft ⓭.
5) Check that the protrusions on the drive changer assembly are in the indentations of the L-SW assembly and insert the No.10 gear phase jig (Ref. No. J-9). (See Fig. 8-14.)
6) Mount No.10 gear ❺ and fix stopper washer ❹ while pushing the No.8 guide ⓬ against the ring stopper ❸.
7) Pull out the No.10 gear phase jig.
8) Set to LOADING TOP mode.

Note : Be sure to perform 8-4. TAPE PATH ADJUSTMENT after mounting.

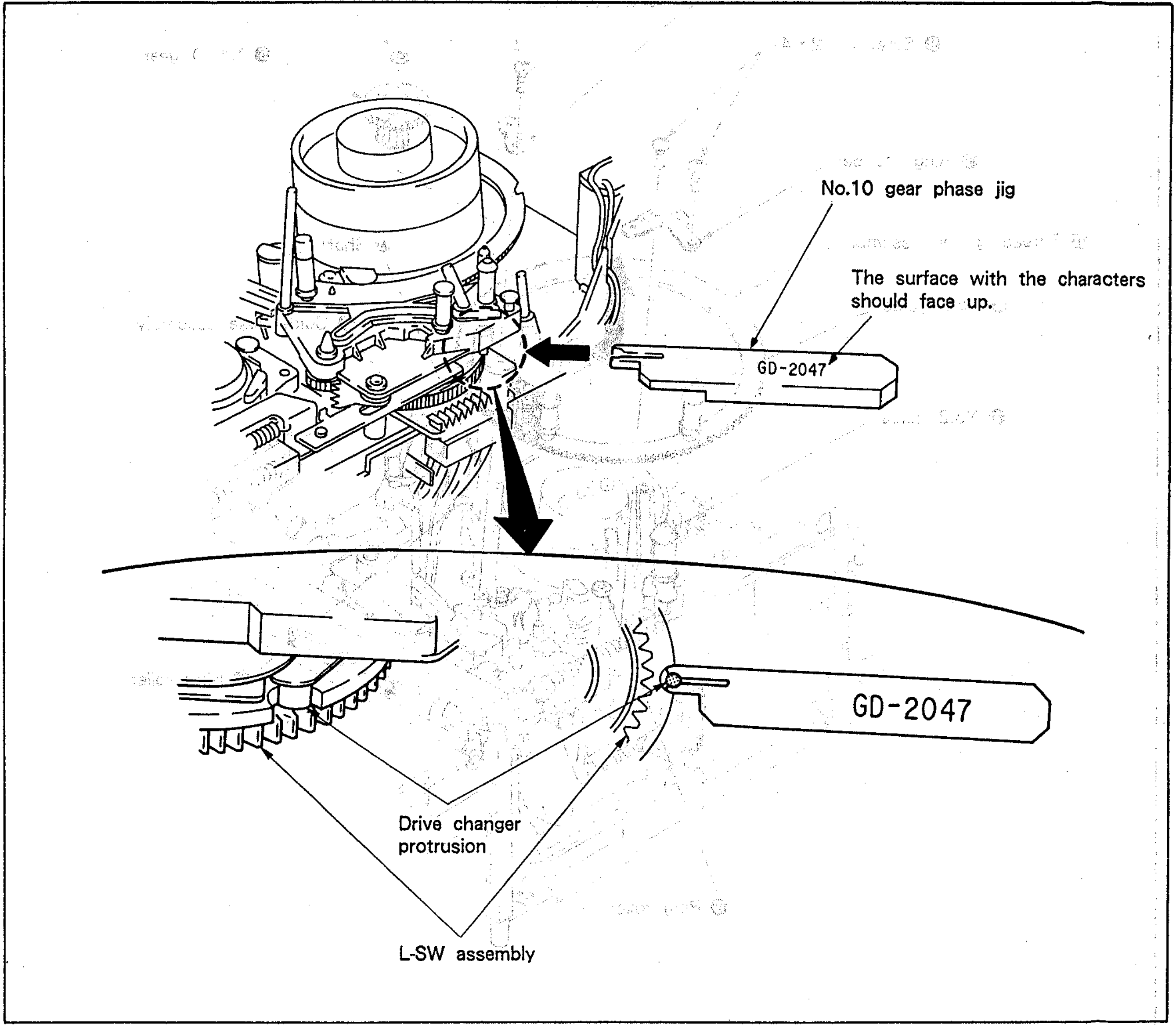

No.10 gear phase jig
The surface with the characters should face up.
GD-2047
GD-2047
Drive changer protrusion
L-SW assembly

Fig. 8-14.

8-3-8. Pinch Roller Assembly

1. Removal

1) Remove the threading ring assembly according to 8-3-7. 1. Removal.(See Fig. 8-13.)
2) Remove stopper washer ❶. (See Fig. 8-15.)
3) Change the position of the spring ❸ on No. 7 guide assembly ❷. (See Fig. 8-16.)
4) Turn pinch roller arm assembly ❹ in the direction of arrow. (See Fig. 8-17.)
5) Remove pinch roller arm assembly ❹ in the direction of arrow. (See Fig. 8-18.)
6) Remove spring ❸. (See Figs. 8-18 and 8-19.)

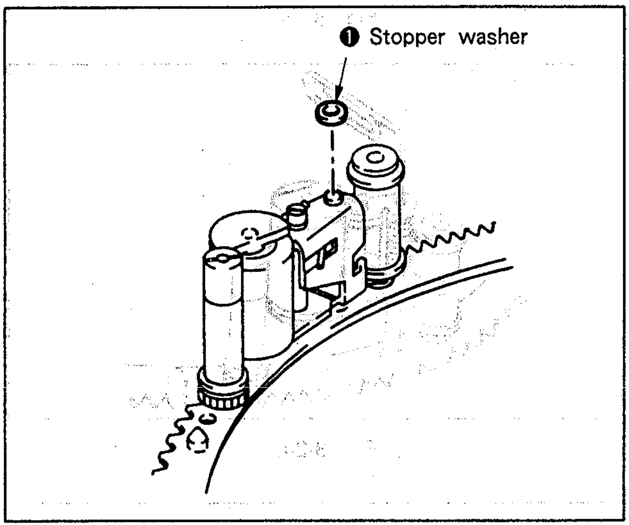

❶ Stopper washer

Fig. 8-15.

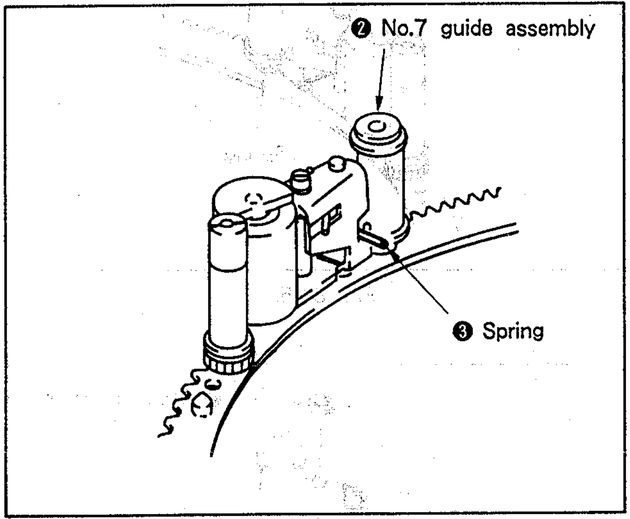

❷ No.7 guide assembly
❸ Spring

Fig. 8-16.

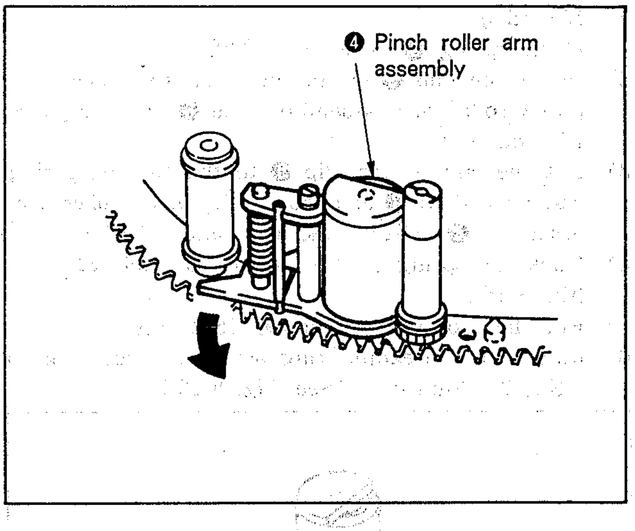

❹ Pinch roller arm assembly

Fig. 8-17.

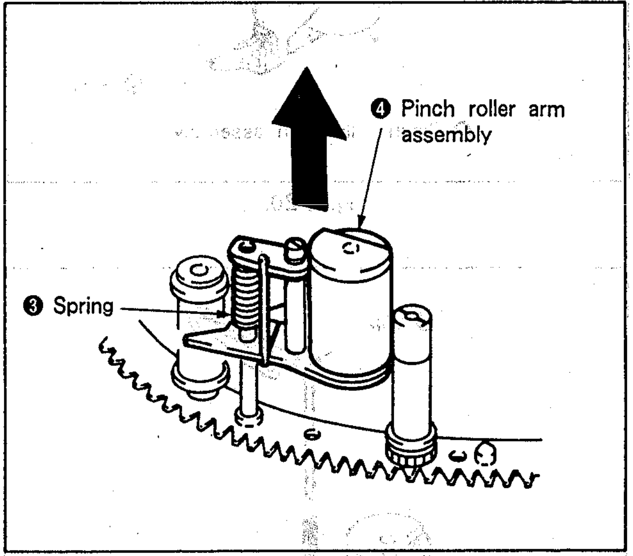

❹ Pinch roller arm assembly
❸ Spring

Fig. 8-18.

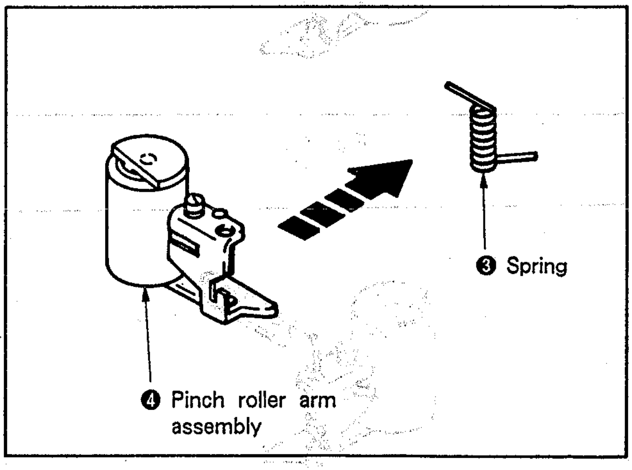

❸ Spring
❹ Pinch roller arm assembly

Fig. 8-19.

2. Mounting

1) Hook spring ❸. (See Fig. 8-22.)
2) Insert the clip ❺ or another thin rod inside the pinch roller arm assembly hole ❻. (See Figs. 8-21. and 8-22.)
3) Put the end of the clip ❺ to the threading ring assembly shaft ❼ and mount the pinch roller arm assembly ❹. (See Figs. 8-23. and 8-24.)
4) Hook the spring on No.7 guide assembly ❷. (See Fig. 8-25.)
5) Fix the stopper washer ❶. (See Fig. 8-26.)
6) Mount the threading ring assembly according to 8-3-7. 2. Mounting. (See Fig. 8-13.)

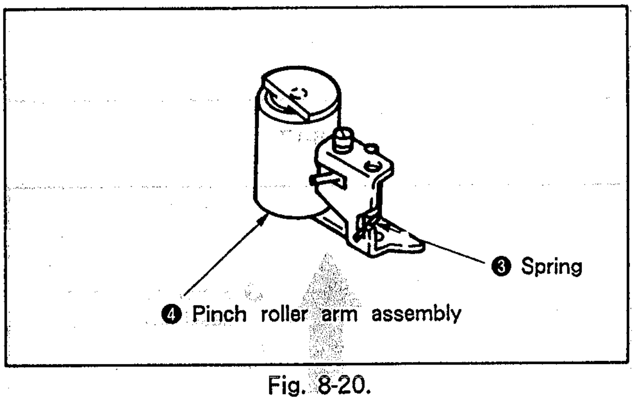

❸ Spring
❹ Pinch roller arm assembly

Fig. 8-20.

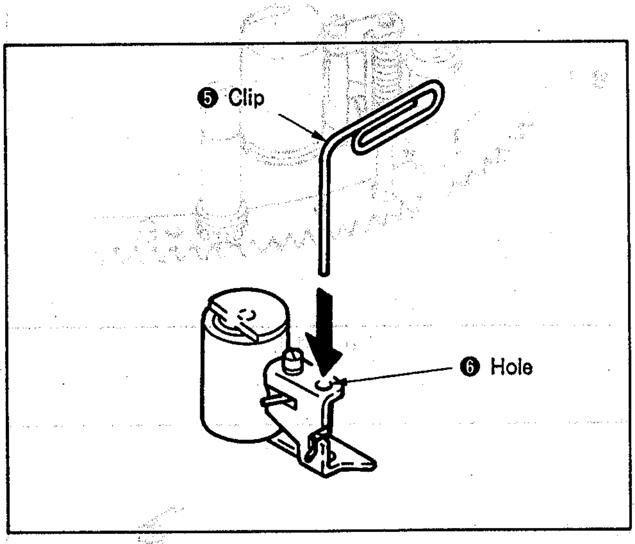

❺ Clip
❻ Hole

Fig. 8-21.

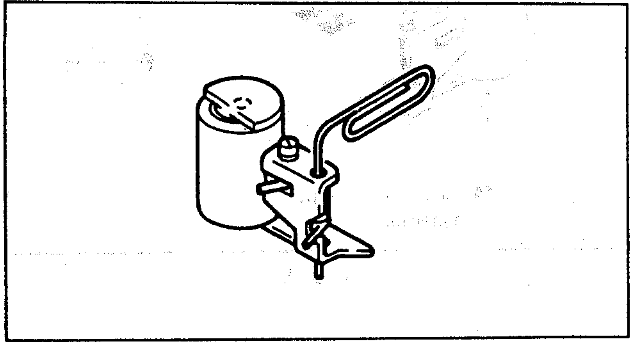


Fig. 8-22.

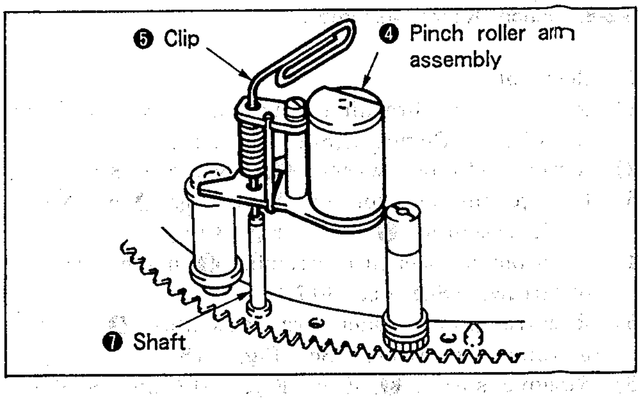

❺ Clip
❹ Pinch roller arm assembly
❼ Shaft

Fig. 8-23.

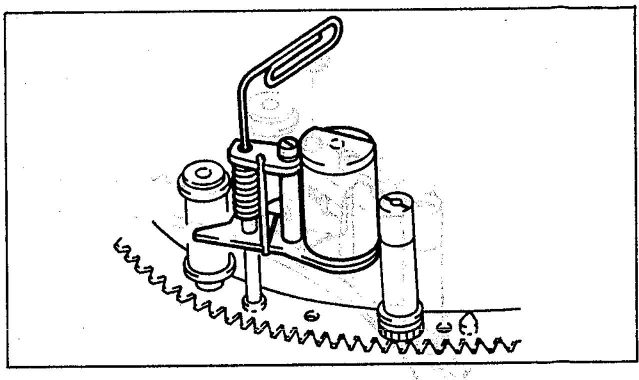


Fig. 8-24.

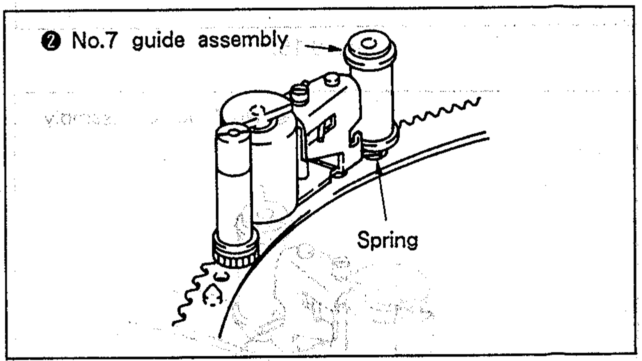

❷ No.7 guide assembly
Spring

Fig. 8-25.

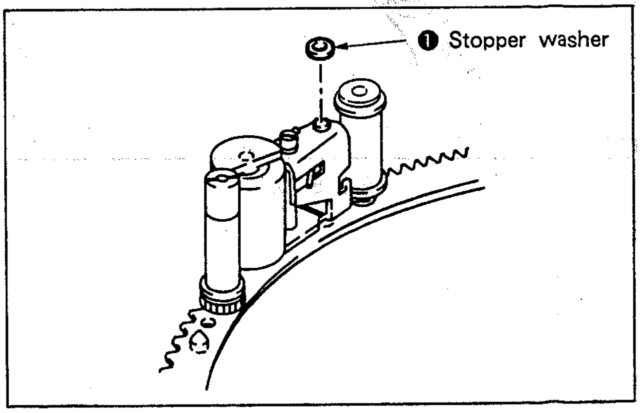

❶ Stopper washer

Fig. 8-26.

8-3-9. Slant Guide Chassis Assembly

1. Removal (See Fig. 8-27.)

1) Set to EJECT mode and life up the cassette compartment assembly.
2) Remove the threading ring assembly according to 8-3-7. 1. Removal. (See Fig. 8-13.)
3) Remove screw ❶ and E ring ❷.
4) Remove the slant guide chassis assembly ❸.

2. Mounting

1) Operate the mode selector, and line up the right edge of the L slider assembly and the right edge of the lock slider assembly. (See Fig. 8-28.)
2) Set the slant guide chassis assembly ❸ guide base assembly in unthreaded state (guide base assembly is on front panel side) and mount. (See Fig. 8-29.)
3) Insert the E ring ❷ and tighten with screw ❶. (See Fig. 8-27.)
4) Put in the state in 8-3-7. 1. Removal, 1).
5) Mount the threading ring assembly according to 8-3-7. 2. Mounting. (See Fig. 8-13.)
6) Lower cassette compartment assembly.

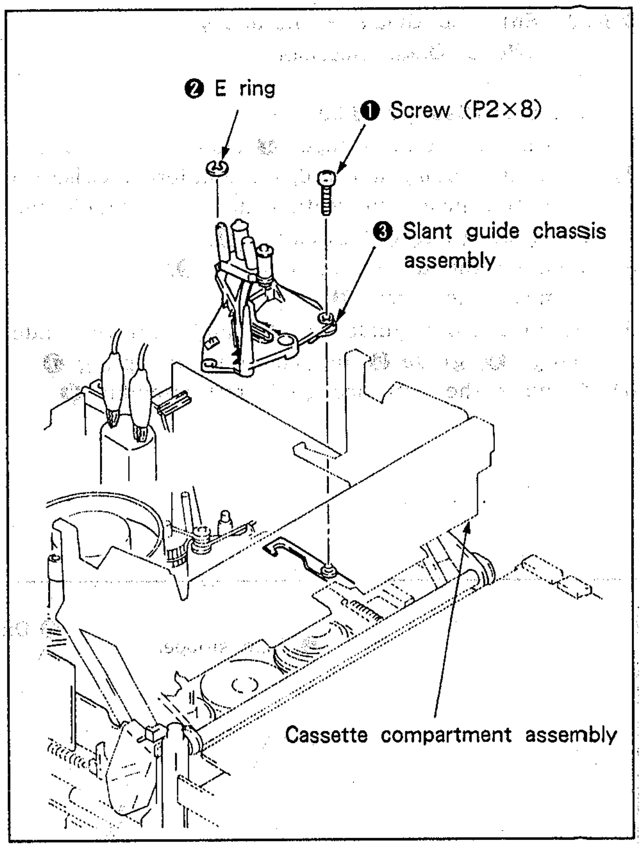

❷ E ring
❶ Screw (P2×8)
❸ Slant guide chassis assembly
Cassette compartment assembly

Fig. 8-27.

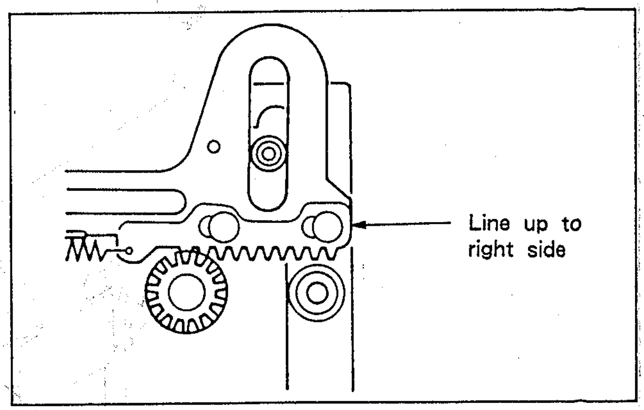

Line up to right side

Fig. 8-28.

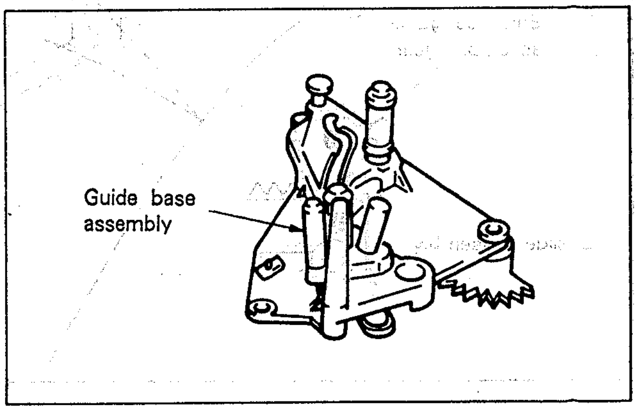

Guide base assembly

Fig. 8-29.

8-3-10. Entrance Guide (P) Assembly (No. 2 Guide Assembly)

1. Removal (See Fig. 8-30.)

1) Release the tape stopper ❶ clow and remove.
2) Turn the rotary upper drum counterclockwise, so that the head tip section dose not touch the entrance guide (P) assembly ❽.
3) Remove the drum guard screw ❷.
4) Remove the screw ❸.
5) Remove No.3 guide nut ❹, and remove guide flange ❺, guide ❻ and compression spring ❼.
6) Remove the entrance guide (P) assembly ❽.

2. Mounting (See Fig. 8-30.)

1) Confirm that LOADING TOP mode is set.
2) Engage the lower side of the entrance guide (P) assembly and L slider assembly with their flat portions Ⓐ and Ⓑ as shown.
3) Mount the compression spring ❼, guide ❻ and guide flange ❺ in that order and then temporarily tighten the guide nut ❹.
4) Tighten the screw ❸.
5) Tighten the drum guard screw ❷.
6) Fix the tape stopper ❶.
7) Perform 8-3-21. FWD Back Tension Adjustment.

Note : Be sure to perform 8-4. TAPE PATH ADJUSTMENT after mounting.

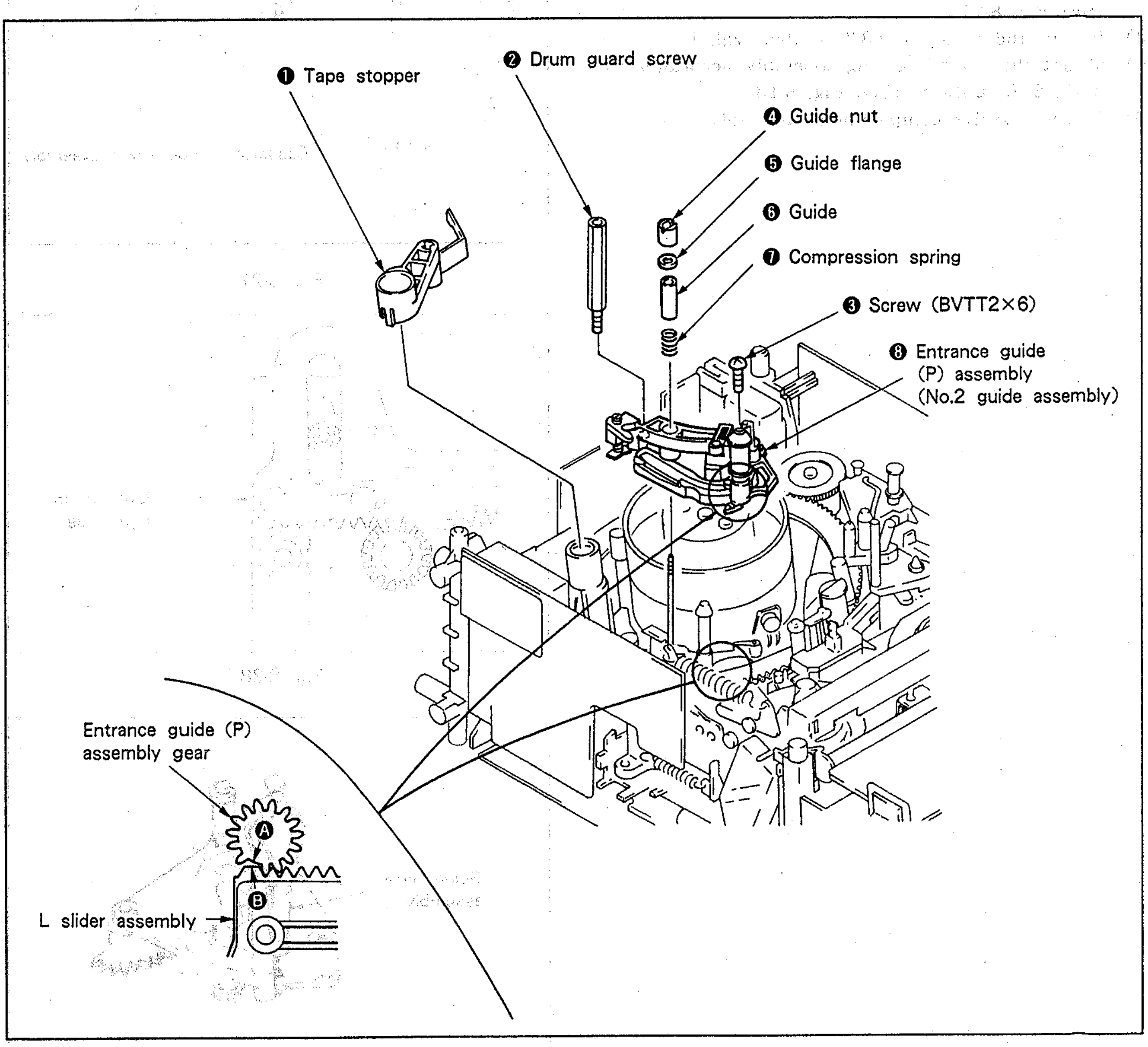

❶ Tape stopper
❷ Drum guard screw
❹ Guide nut
❺ Guide flange
❻ Guide
❼ Compression spring
❸ Screw (BVTT2×6)
❽ Entrance guide (P) assembly (No.2 guide assembly)
Entrance guide (P) assembly gear
Ⓐ
Ⓑ
L slider assembly

Fig. 8-30.

8-3-11. L Slider Assembly

1. Removal (See Fig. 8-31.)

1) Remove the tension regulator arm assembly according to 8-3-4. 1. Removal.
2) Remove the slant guide chassis assembly according to 8-3-9. 1. Removal.
3) Remove the entrance guide (P) assembly according to 8-3-10. 1. Removal.
4) Set to DRUM START mode.
5) Remove slant guide driving gear ❶.
6) Remove the two stopper washers ❷.
7) Removal the tension spring ❸ from the L slider assembly and remove the L slide assembly ❹.
8) Remove the stopper washer ❺ and remove the arm assembly ❻.

2. Mounting

1) Grease. (See Fig. 8-32.)
2) Mount the arm assembly ❻ and fix the stopper washer ❺. (See Fig. 8-31.)
3) Mount the L slider assembly ❹ and hook the tension spring ❸.
4) Fix the two stopper washers ❷.
5) Observe upper and lower sides of the slant guide driving gear ❶ and engage it so that the notch is 1 tooth away from the L slider assembly left side tooth. (See Fig. 8-33.)
6) Mount the entrance guide (P) assembly according to 8-3-10. 2. Mounting.
7) Mount the slant guide chassis assembly according to 8-3-9. 2. Mounting.
8) Mount the tension regulator arm assembly according to 8-3-4. 2. Mounting.

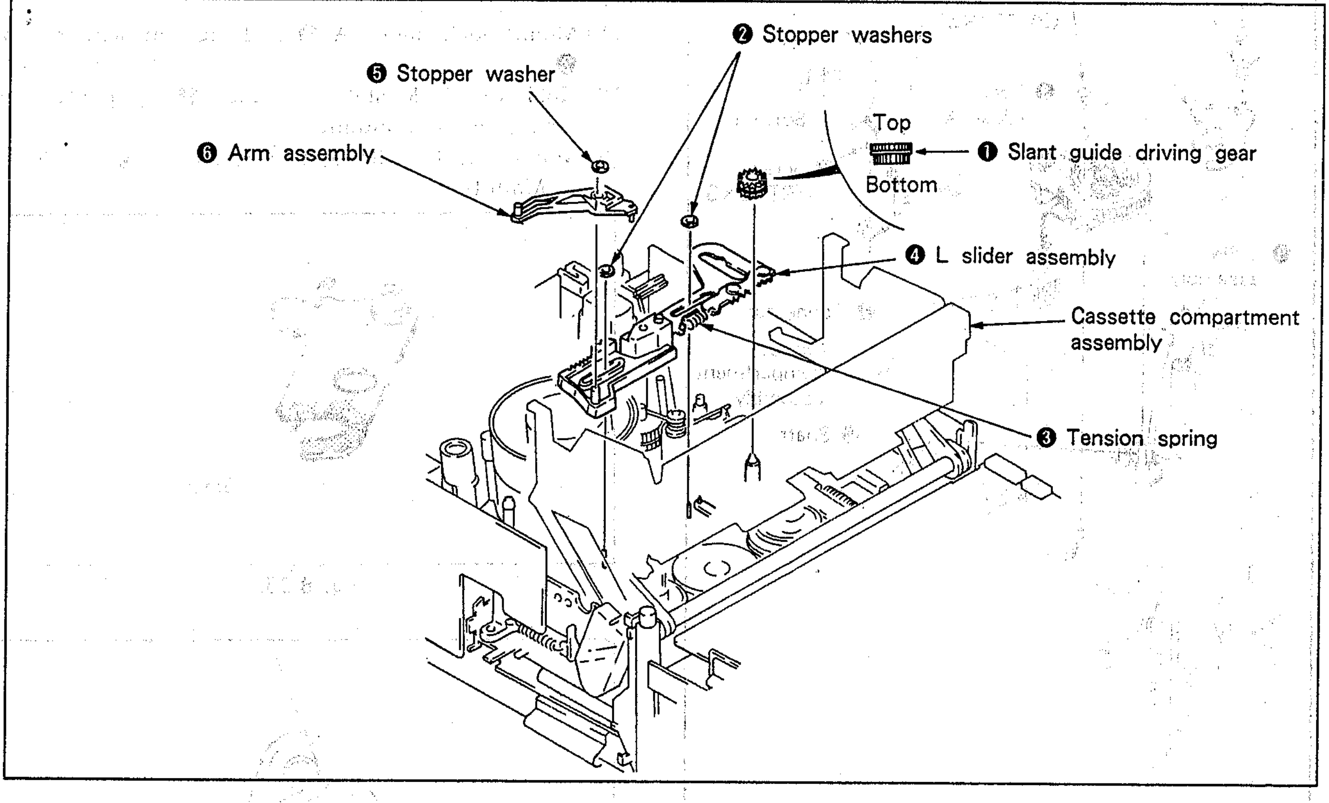

❷ Stopper washers
❺ Stopper washer
❻ Arm assembly
Top
❶ Slant guide driving gear
Bottom
❹ L slider assembly
Cassette compartment assembly
❸ Tension spring

Fig. 8-31.

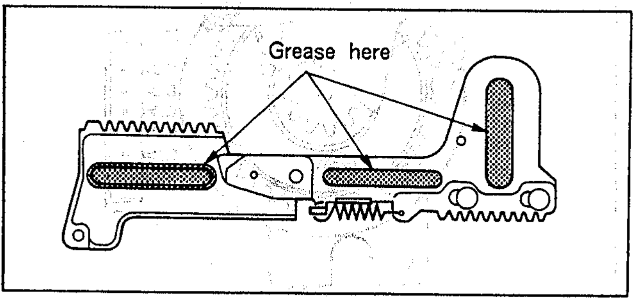

Grease here

Fig. 8-32.

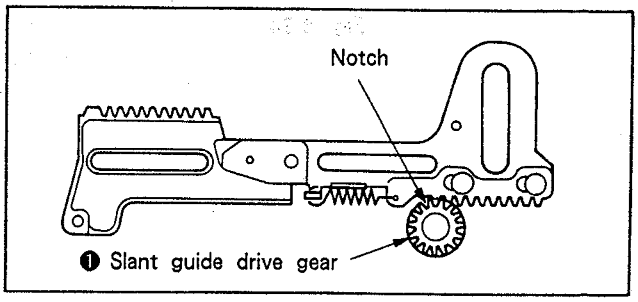

Notch
❶ Slant guide drive gear

Fig. 8-33.

8-3-12. L-SW Assembly

1. Removal (See Fig. 8-34.)

1) Remove the L slider assembly according to 8-3-11. 1. Removal.
2) Remove lock slider retainer ❶.
3) Remove screw ❷ and lock slider A ❸.
4) Remove stopper washer ❹ and remove torsion spring ❺.
5) Remove drive change assembly ❻.
6) Remove connector ❼.
7) Remove the two screws ❽ and remove the L-SW assembly ❾.

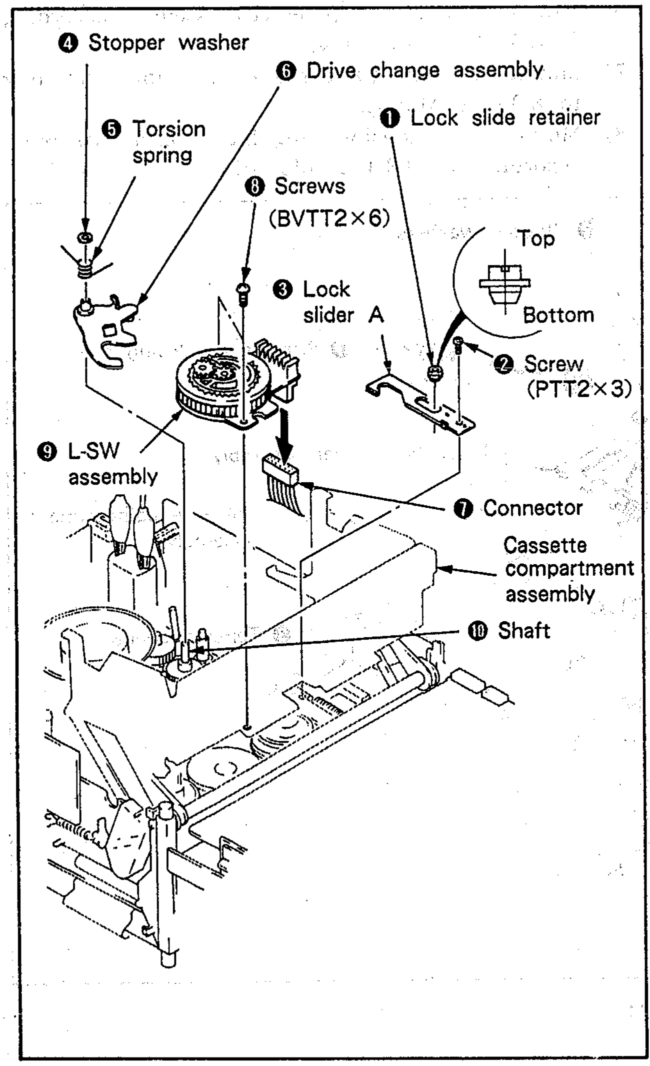

❹ Stopper washer
❻ Drive change assembly
❶ Lock slide retainer
❺ Torsion spring
❽ Screws (BVTT2×6)
Top
❸ Lock slider A
Bottom
❷ Screw (PTT2×3)
❾ L-SW assembly
❼ Connector
Cassette compartment assembly
❿ Shaft

Fig. 8-34.

2. Mounting (See Fig. 8-34)

1) Put a half drop of oil on the L-SW assembly ❾ shaft (planetary roller shaft).
2) Mount L-SW assembly ❾ and tighten with the two screws ❽.
3) Connect connector ❼.
4) Operate the mode selector and confirm that the L-SW assembly ❾ rotates.
5) Put a half drop of oil on the shaft ❿.
6) Grease the drive change assembly ❻. (See Fig. 8-35.)
7) Mount the drive change assembly ❻.
8) Hook the torsion spring ❺ and fix the stopper washer ❹.
9) Operate the mode selector and confirm that the L-SW assembly ❾ rotates.
10) Operate the mode selector and set to the position in Fig. 8-36.
11) Mount lock slider A ❸ and tighten with screw ❷.
12) Hold the lock slider retainer ❶ with the top facing up and mount it.
13) Mount the L slider assembly according to 8-3-11. 2. Mounting.

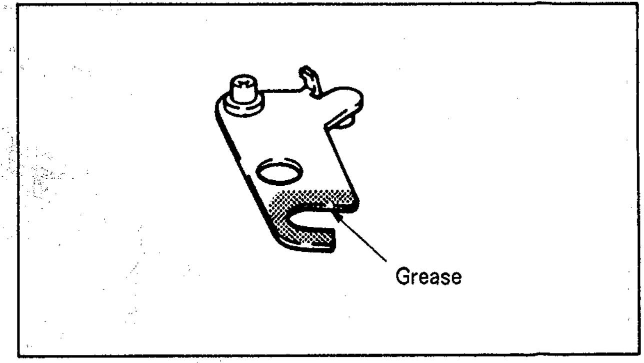


Fig. 8-35.

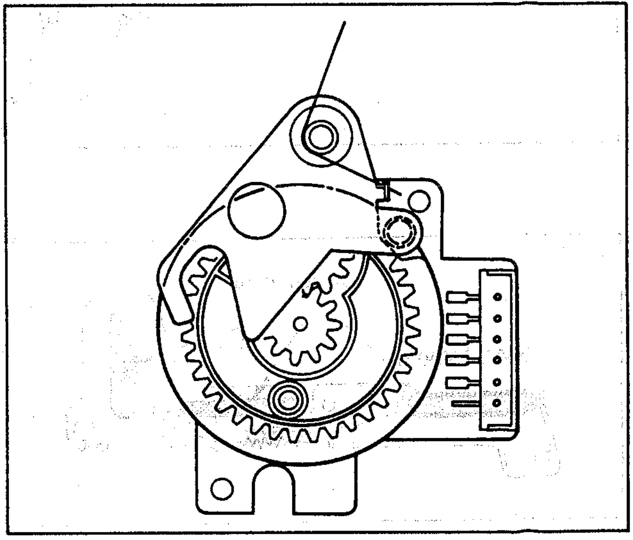


Fig. 8-36.

8-3-13. Plunger Solenoid

1. Removal (See Fig. 8-37.)

1) Open the battery holder assembly according to Section 2. DISASSEMBLY 2-20.
2) Remove the cassette compartment assembly according to Section 2. DISASSEMBLY 2-12.
3) Remove the T reel table assembly according to 8-3-2.
4) Remove spring ❶.
5) Remove the two stopper washers ❷.
6) Remove the screw ❸ and remove lock slider assembly ❹.
7) Unsolder plunger solenoid ❻ terminal at three places.
8) Remove the two screws ❺ and remove the plunger solenoid ❻.

2. Mounting (See Fig. 8-37.)

1) Insert the plunger solenoid pin ❼ into the P arm hole ❽ and mount with the two screws ❺.
2) Solder terminal of plunger solenoid ❻ at three places.
3) Mount lock slider assembly ❹ and fix with screw ❸.
4) Fix the two stopper washers ❷.
5) Hook the spring ❶.
6) Mount the T reel table assembly according to 8-3-2. 2. Mounting.
7) Mount the cassette compartment assembly according to 8-1-1.
8) Mount the battery holder assembly in opposite procedure of Section 2. DISASSEMBLY 2-20.

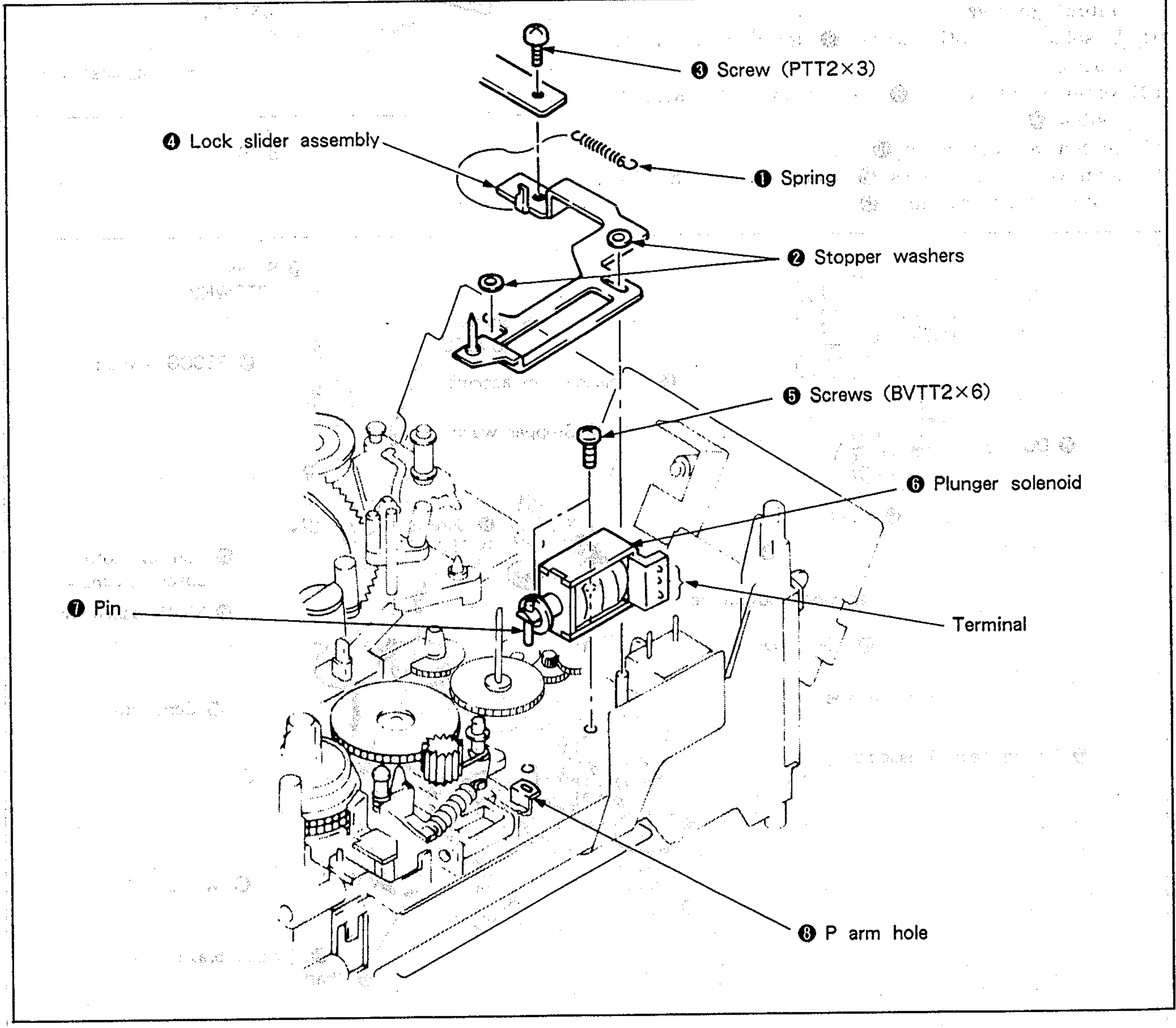

❸ Screw (PTT2×3)
❹ Lock slider assembly
❶ Spring
❷ Stopper washers
❺ Screws (BVTT2×6)
❻ Plunger solenoid
❼ Pin
Terminal
❽ P arm hole

Fig. 8-37.

8-3-14. M-SW Assembly

1. Removal (See Fig. 8-39.)

1) Open the SS-83 board according to Section 2. DISASSEMBLY 2-14. and remove CN301 connector (black) 2P from the RS-18 board and lengthen the wiring which comes outside.
2) Remove the T reel table assembly according to 8-3-2. (See Fig. 8-8.)
3) Remove stopper washer ❶ and remove the driving gear B assembly ❷.
4) Remove the LD-1 board ❸. (See Fig. 8-38.)
5) Remove lock slider assembly according to 8-3-13. 1. Removal, 3) to 5).
6) Remove the spring ❹ and remove B release arm assembly ❺.
7) Confirm that EJECT mode is set.
8) Remove stopper washer ❻ and remove the mode output gear ❼.
9) Unsolder RECOG switch ❾ terminal at three places.
10) Remove the screw ❽ and remove the RECOG switch ❾.
11) Disconnect connector ❿.
12) Remove three screws ⓫, and remove the DC motor cover assembly ⓬.
13) Push the T.S release arm in the direction of arrow 🅐 while lifting the M-SW assembly ⓮. And then, push the T main brake assembly ⓭ in the direction of arrow 🅑 and remove the M-SW assembly ⓮.
14) Remove solder 🅒 and remove the control motor ⓯.

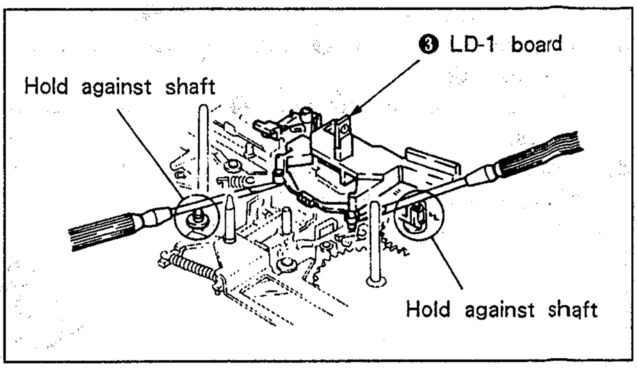

❸ LD-1 board
Hold against shaft
Hold against shaft

Fig. 8-38.

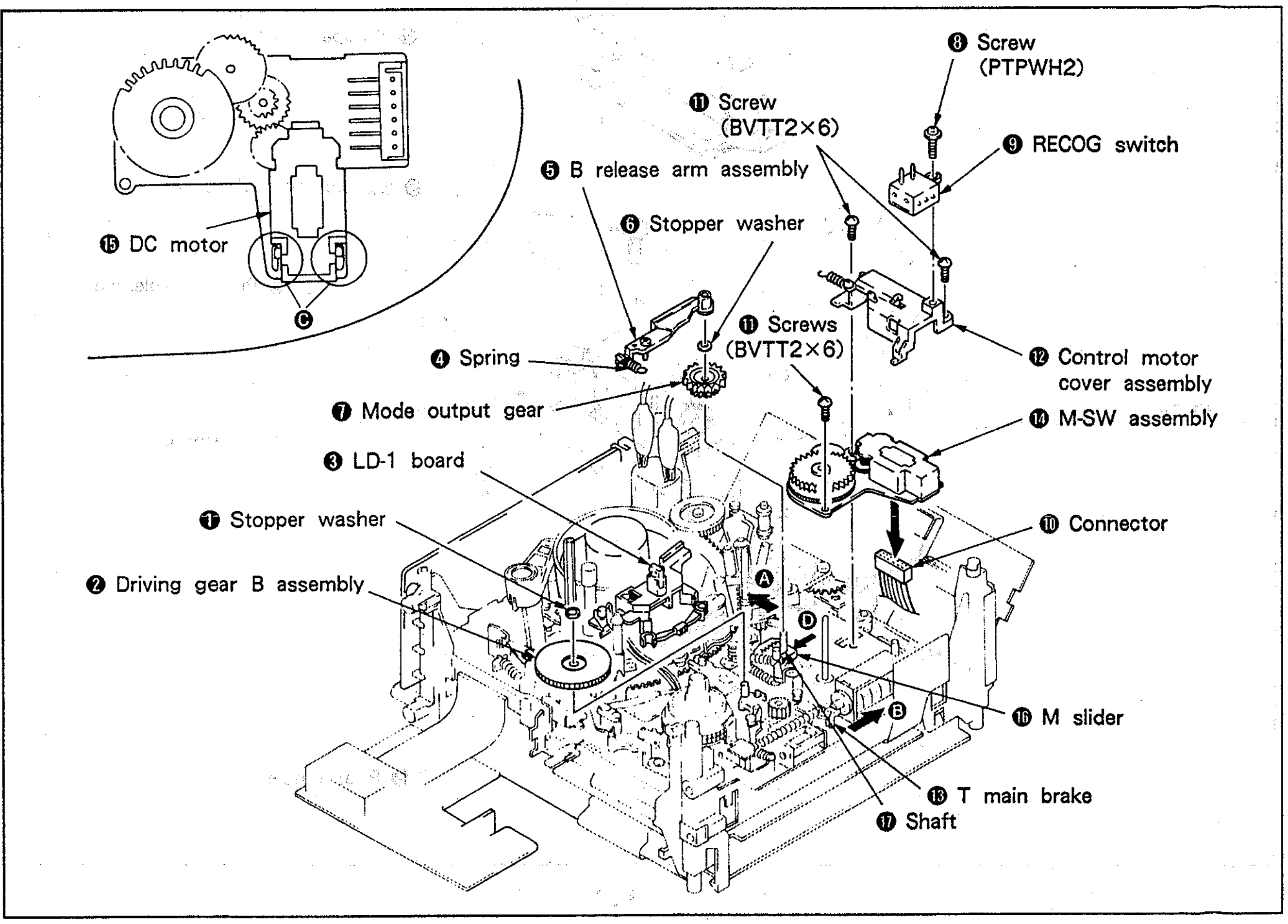

❽ Screw
(PTPWH2)
⓫ Screw
(BVTT2×6)
❾ RECOG switch
❺ B release arm assembly
❻ Stopper washer
⓯ DC motor
🅒
⓫ Screws
(BVTT2×6)
❹ Spring
⓬ Control motor
cover assembly
❼ Mode output gear
⓮ M-SW assembly
❸ LD-1 board
❶ Stopper washer
❿ Connector
❷ Driving gear B assembly
🅐
🅓
🅑
⓰ M slider
⓭ T main brake
⓱ Shaft

Fig. 8-39.

2. Mounting (See Fig. 8-39.)

1) Solder the DC motor ⓯.
2) Mount the M-SW assembly ⓮ in opposite procedure of 8-3-14. 1. Removal, 13).
3) Mount the control motor cover assembly ⓬, and tighten with the three screws ⓫.
4) Connect the connector ❿.
5) Solder the terminal of RECOG switch ❾ at three places.
6) Mount the RECOG switch ❾ and fix with screw ❽.
7) Confirm $\boxed{\text{EJECT}}$ mode is set.
8) Confirm that M slider ⓰ is moved fully in the direction of arrow 🅓.
9) Put a half drop of oil on the shaft ⓱.
10) Mount the mode output gear ❼ so that the positioning holes are lined up. (See Fig. 8-40.)
11) Fix stopper washer ❻.
12) Set to $\boxed{\text{LOADING/UNLOADING}}$ mode.
13) Mount B release arm assembly ❺ and hook spring ❹.
14) Mount the lock slider assembly according to 8-3-13. 2. Mounting, 3) to 5).
15) Mount the LD-1 board ❸.
16) Mount driving gear B assembly ❷ and fix stopper washer ❶.
17) Mount the T reel table assembly according to 8-3-2. 2. Mounting.

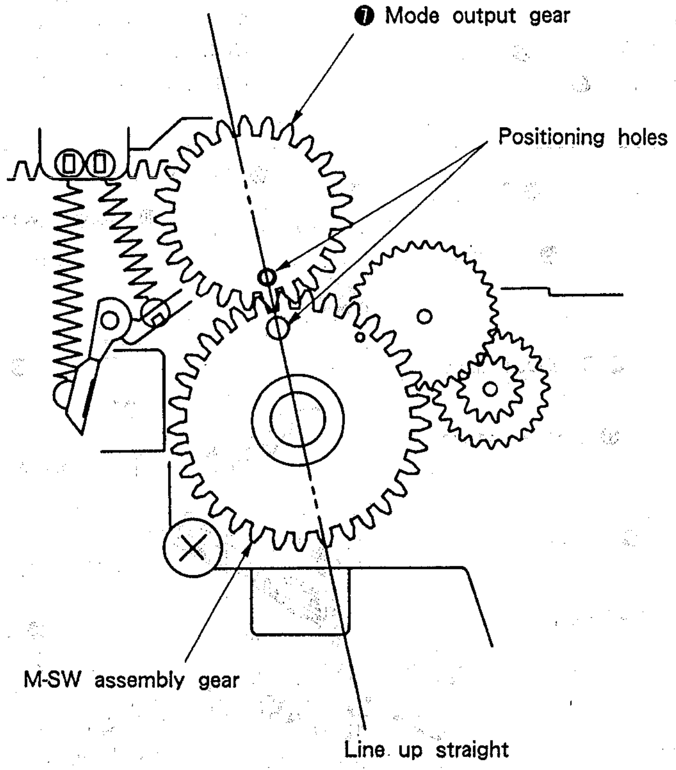


Fig. 8-40.

8-3-15. M Slider

1. Removal (See Fig. 8-41.)

1) Open the SS-83 board according to Section 2. DISASSEMBLY 2-14. and remove timing belt ❶.
2) Remove the S reel table assembly according to 8-3-1. 1. Removal. (See Fig. 8-7.)
3) Remove the T reel table assembly according to 8-3-2. 1. Removal. (See Fig. 8-8.)
4) Remove the pinch press arm assembly according to 8-3-3. 1. Removal. (See Fig. 8-9.)
5) Remove the tension regulator arm assembly according to 8-3-4. 1. Removal. (See Fig. 8-10.)
6) Remove the tension regulator band assembly according to 8-3-5. 1. Removal. (See Fig. 8-11.)
7) Remove the threading ring assembly according to 8-3-7. 1. Removal. (See Fig. 8-12.)
8) Perform 8-3-14. 1. Removal, 2) to 6).
9) Remove the arm assembly according to 8-3-11. 1. Removal, 8). (See Fig. 8-31.)
10) Remove the spring ❷.
11) Remove the two stopper washers ❸ and remove the S main brake assembly ❹ and the T main brake assembly ❺.
12) Set to LOADING TOP and LOADING/UNLOADING modes.
13) Remove the two screws ❻ and the driving complete assembly ❼.
14) Perform 8-3-14. 1. Removal, 8).
15) Remove the two springs ❽.
16) Remove REW brake assembly ❾.
17) Remove RVS arm ⓬.
18) Remove stopper washer ❿ and remove the B release slider ⓫.
19) Remove stopper washer ⓭, and remove the spring ⓮ and RL arm ⓯.
20) Move the M slider ⓰ to the right. (Leave about 5 mm at the left.)
21) Remove the E ring ⓱ and remove the pinch press lever assembly ⓲.
22) Remove spring ⓳ and remove the hard brake S ⓴.
23) Remove stopper washer ㉑, push the mode arm ㉒ in the direction of the arrow, and lift up the left side of the M slider ⓰ to remove.

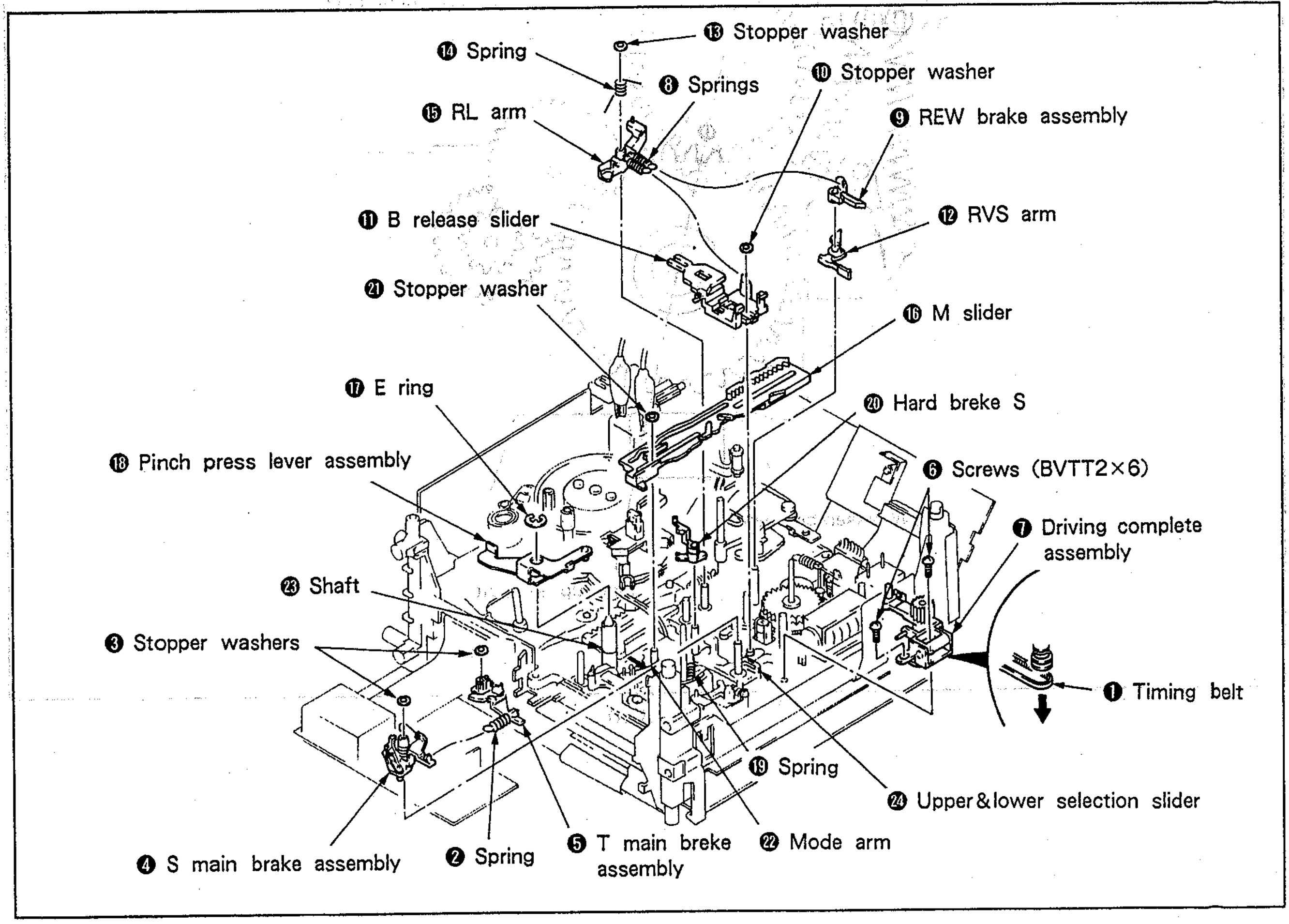

⓭ Stopper washer
⓮ Spring
❽ Springs
❿ Stopper washer
⓯ RL arm
❾ REW brake assembly
⓫ B release slider
⓬ RVS arm
㉑ Stopper washer
⓰ M slider
⓱ E ring
⓴ Hard breke S
⓲ Pinch press lever assembly
❻ Screws (BVTT2×6)
❼ Driving complete assembly
㉓ Shaft
❸ Stopper washers
❶ Timing belt
⓳ Spring
㉔ Upper&lower selection slider
❹ S main brake assembly
❷ Spring
❺ T main breke assembly
㉒ Mode arm

Fig. 8-41.

2. Mounting (See Fig. 8-41.)

1) Grease. (See Fig. 8-42.)
2) Push mode arm ㉒ in the direction of the arrow, and mount the M slider ⓰, noting the positioning of the other parts in Fig. 8-43, and fix the stopper washer ㉑.
3) Mount hard brake S ⓴ and hook spring ⓳.
4) Grease. (See Fig. 8-44.)
5) Put a half drop of oil from the shaft ㉓ groove to the bottom, mount the pinch press lever assembly ⓲ and insert the E ring ⓱.
6) Mount RL arm ⓯, hook the spring ⓮ and fix the stopper washer ⓭.
7) Mount B release slider ⓫ and fix stopper washer ❿.
8) Move the B release slider ⓫ to the drum side and mount the RVS arm ⓬.
9) Mount REW brake assembly ❾.
10) Hook the two springs ❽.

    Note : Hook the two springs as follows, being careful not to mix them up.

    - B release slider spring :
      total diameter 2 mm, wire diameter 0.18 mm
    - REW brake assembly spring :
      total diameter 1.6 mm, wire diameter 0.12 mm

11) Move the M slider ⓰ fully to the left.
12) Set to EJECT mode.
13) Perform 8-3-14. 2. Mounting, 9), 10) and 11).
14) Set to LOADING/UNLOADING mode.
15) Insert the driving complete assembly ❼ horizontal shaft into the upper & lower selection slider ㉔ groove, and insert the protrusion on the RVS arm ⓬ into the notch in the driving complete assembly ❼ and mount with the two screws ❻.
16) Mount the T main brake assembly ❺ and S main brake assembly ❹. Fix the two stopper washers ❸ to one assembly each and hook the spring ❷.
17) Mount the arm assembly according to 8-3-11. 2. Mounting, 2).
18) Perform 8-3-14. 2. Mounting, 13) to 17).
19) Mount the threading ring assembly according to 8-3-7. 2. Mounting.
20) Mount the tension regulator band assembly according to 8-3-5. 2. Mounting.
21) Mount the tension regulator arm assembly according to 8-3-4. 2. Mounting.
22) Mount the pinch press arm assembly according to 8-3-3. 2. Mounting.
23) Mount the T reel table assembly according to 8-3-2. 2. Mounting.
24) Mount the S reel table assembly according to 8-3-1. 2. Mounting.
25) Mount the timing belt ❶ and mount the SS-83 board in opposite procedure of Section 2. DISASSEMBLY 2-14.

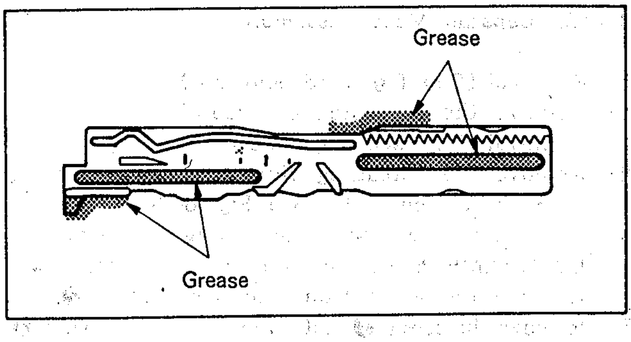


Fig. 8-42.

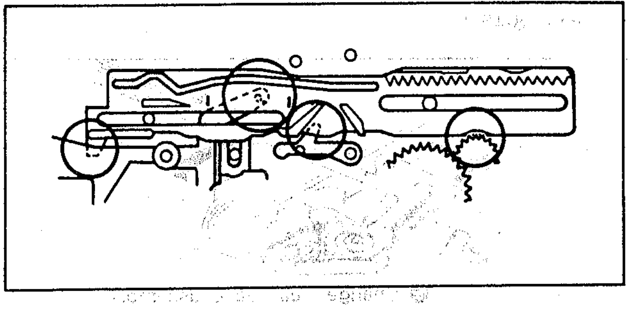


Fig. 8-43.

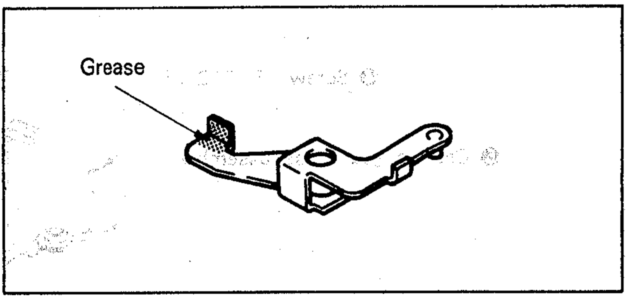


Fig. 8-44.

8-3-16. Capstan Motor Assembly

1. Removal (See Fig. 8-45. and 8-46.)

1) Remove the tape stopper according to 8-3-1. 1. Removal, 1). (See Fig. 8-30.)
2) Remove the threading ring assembly according to 8-3-7. 1. Removal. (See Fig. 8-13.)
3) Open the SS-83 board according to Section 2. DISASSEMBLY 2-14 and put the set upside down.
4) Remove the wires from the wire holder ❷.
5) Remove the screw ❶ and remove the wire holder ❷.
6) Remove the timing belt ❸.
7) Remove the screw ❹ and remove the change gear base assembly ❺ with a screwdriver, etc. (See Fig. 8-45.)

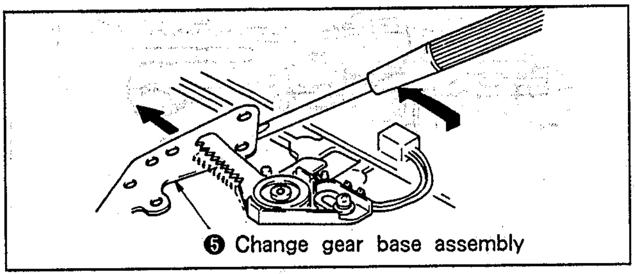

❺ Change gear base assembly

Fig. 8-45.

8) Remove the flexible connector ❻.
9) Remove the two screws ❼ and remove the capstan motor assembly ❽ in the direction of the arrow. (See Fig. 8-46.)

2. Mounting (See Fig. 8-46.)

1) Mount the capstan motor assembly ❽ and tighten with two screws ❼.
2) Connect the flexible connector ❻.
3) Mount the change gear base assembly ❺ and tighten with screw ❹.
4) Hook the timing belt ❸.
5) Mount the wire clamper ❷ and tighten with the screw ❶.
6) Arrange the wires using the wire clamper ❷.
7) Mount the SS-83 board in opposite procedure of Section 2. DISASSEMBLY 2-14.
8) Mount the threading ring assembly according to 8-3-7. 2. Mounting. (See Fig. 8-13.)
9) mount the tape stopper according to 8-3-10. 2. Mounting, 6).

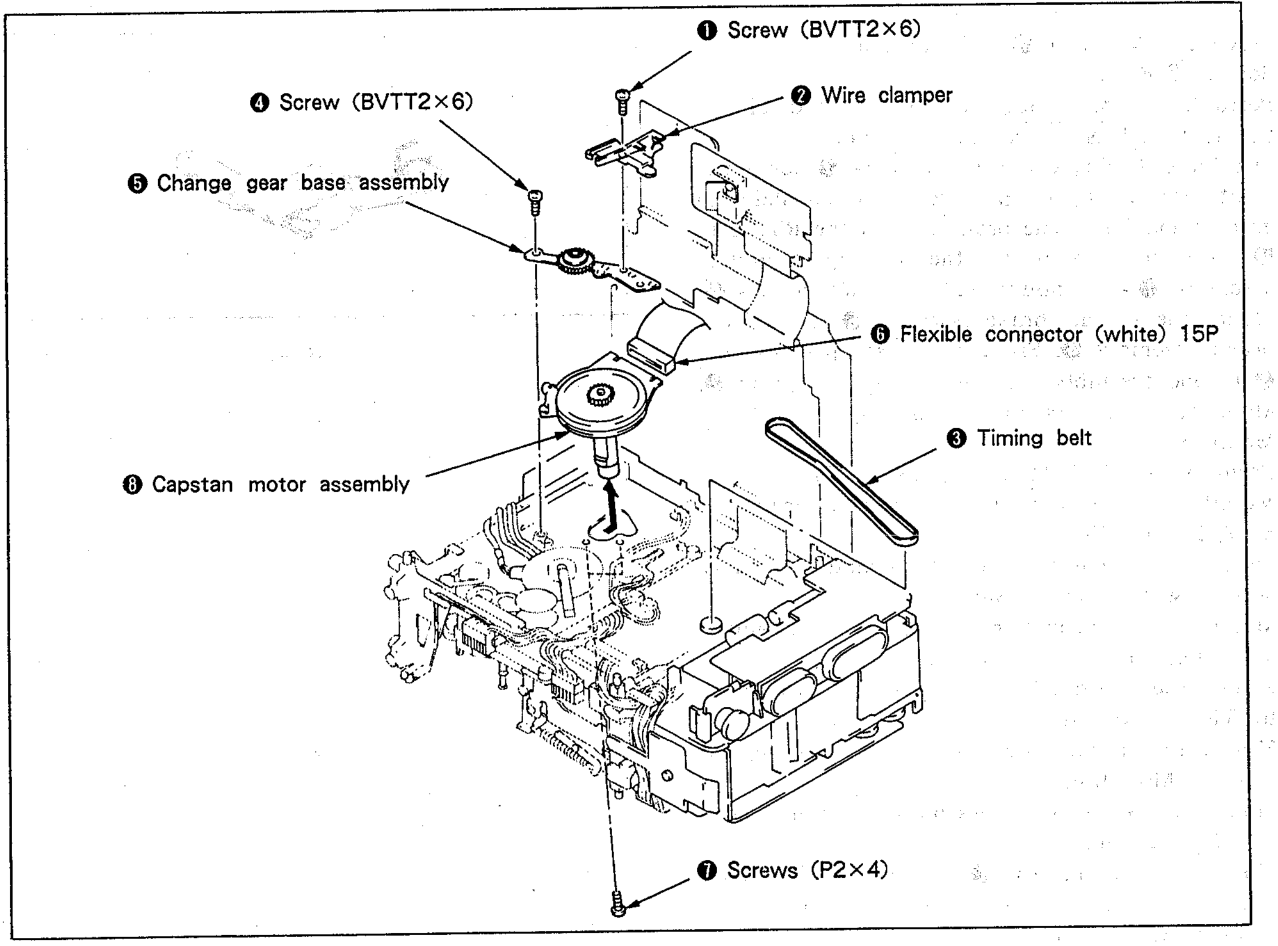

❶ Screw (BVTT2×6)
❹ Screw (BVTT2×6)
❷ Wire clamper
❺ Change gear base assembly
❻ Flexible connector (white) 15P
❸ Timing belt
❽ Capstan motor assembly
❼ Screws (P2×4)

Fig. 8-46.

8-3-17. Replacement of Rotary Upper Drum

1. Removal

- If recording is possible, remove after recording.

1) Remove all eight solders in section Ⓐ and confirm that the board and the pins on the bottom can move freely, using tweezers or the like. (See Fig. 8-47.(b).)
2) Remove the two hexagonal bolt screws ❶. (See Fig. 8-47.(a).)
3) Mount the supplied jig Ⓑ (Ref. No. J-10) on the mounting hole with the two supplied screws ❷, and mount the supplied hexagonal bolt screw ❸ on supplied jig Ⓑ, then remove the rotary upper drum ❹. (See Fig. 8-48.)

- **Repair rotary upper drum assembly**
  DGR-29-R A-7049-156-A

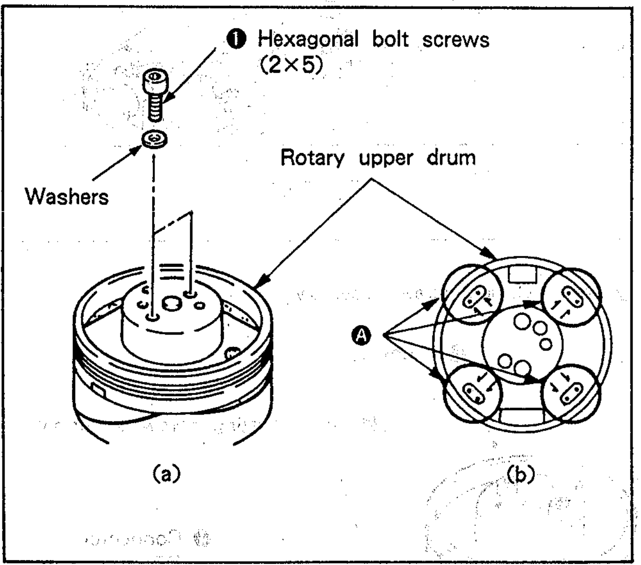

❶ Hexagonal bolt screws (2×5)
Washers
Rotary upper drum
Ⓐ
(a)
(b)

Fig. 8-47.

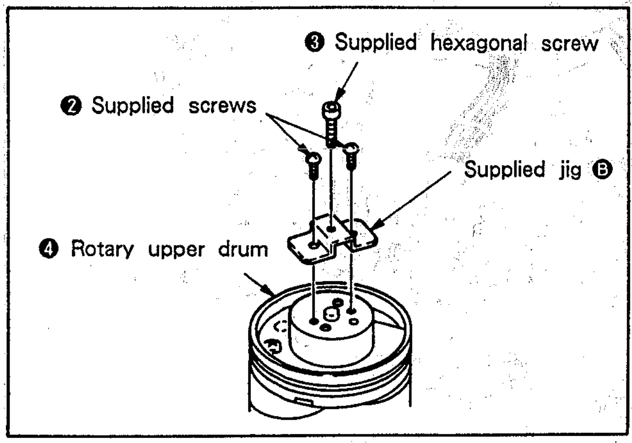

❸ Supplied hexagonal screw
❷ Supplied screws
Supplied jig Ⓑ
❹ Rotary upper drum

Fig. 8-48.

2. Mounting

1) Clean the flange surface and the surface of the rotary upper drum which contacts it, and confirm that there is no dirt or scratches.
2) Use jig Ⓒ (Ref. No. J-10) to line up rotary upper drum ❹ and the positioning hole Ⓓ, and lightly insert the rotary upper drum. At this time, confirm that the pins stick up the hole of rotary upper drum board. Fix with tweezers if the pins catch. (See Fig. 8-49.)
3) Remove jig Ⓒ and push the rotary upper drum in by hand, lightly. (See Fig. 8-50.) When it is not inserted all the way, tighten the two hexagonal bolt screws ❶ alternately to temporarily fix it.
4) Insert jig Ⓒ into the positioning hole Ⓓ again and confirm that it goes in smoothly. If not, loosen the two hexagonal bolt screws ❶ and adjust it by inserting a clock screwdriver into the hole.
5) Tighten the two hexagonal bolt screws ❸.
   Note :Be careful not to tighten too much.
6) Solder the pins in section Ⓐ. (See Fig. 8-47.)
   Note :Be careful that the solder does not go under the board.

Note : After mounting, be sure to perform 8-4. TAPE PATH ADJUSTMENT.

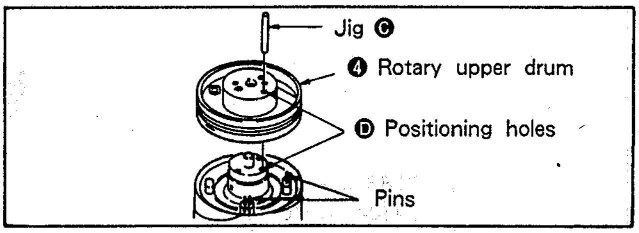

Jig Ⓒ
❹ Rotary upper drum
Ⓓ Positioning holes
Pins

Fig. 8-49.

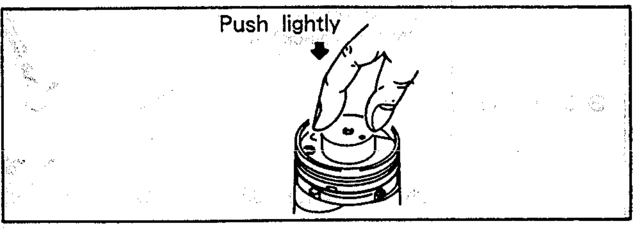

Push lightly

Fig. 8-50.

8-3-18. Replacement of Drum Assembly

1. Removal (See Figs. 8-51. and 8-52.)

1) Open the SS-83 board according to Section 2. DISASSEMBLY 2-14.
2) Remove the screw ❶.
3) Remove the screw ❷ and remove the shaft ground terminal ❸.
4) Remove the five connectors ❹.
5) Remove the two screws (fitting screw assembly) ❺.
6) Remove the drum assembly ❻.

2. Mounting (See Figs. 8-51. and 8-52.)

1) Mount the drum assembly ❻ and tighten with the two screws (fitting screw assembly) ❺.
2) Connect the five connectors ❹.
3) Mount the shaft ground terminal ❸ and tighten with the screw ❷.
4) Tighten the screw ❶.

Note : Be sure to perform 8-4. TAPE PATH ADJUSTMENT after mounting.

- **Repair drum assembly**
  DGH-29A-R A-7048-147-A

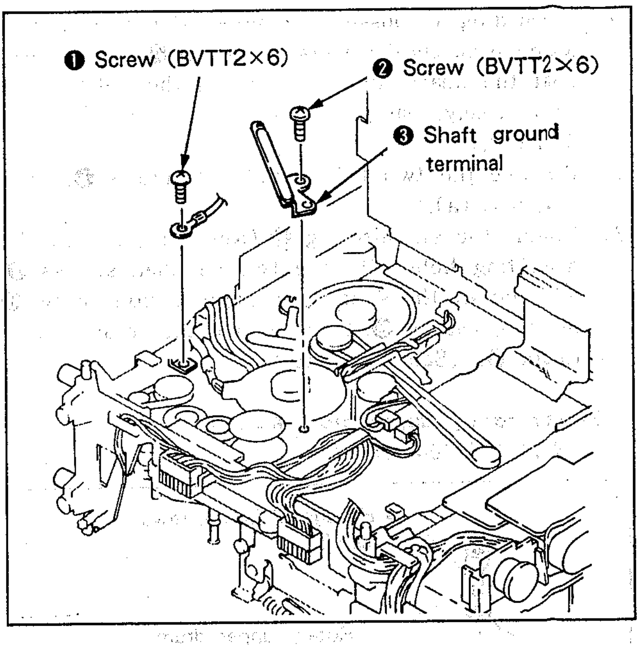

❶ Screw (BVTT2×6)
❷ Screw (BVTT2×6)
❸ Shaft ground terminal

Fig. 8-51.

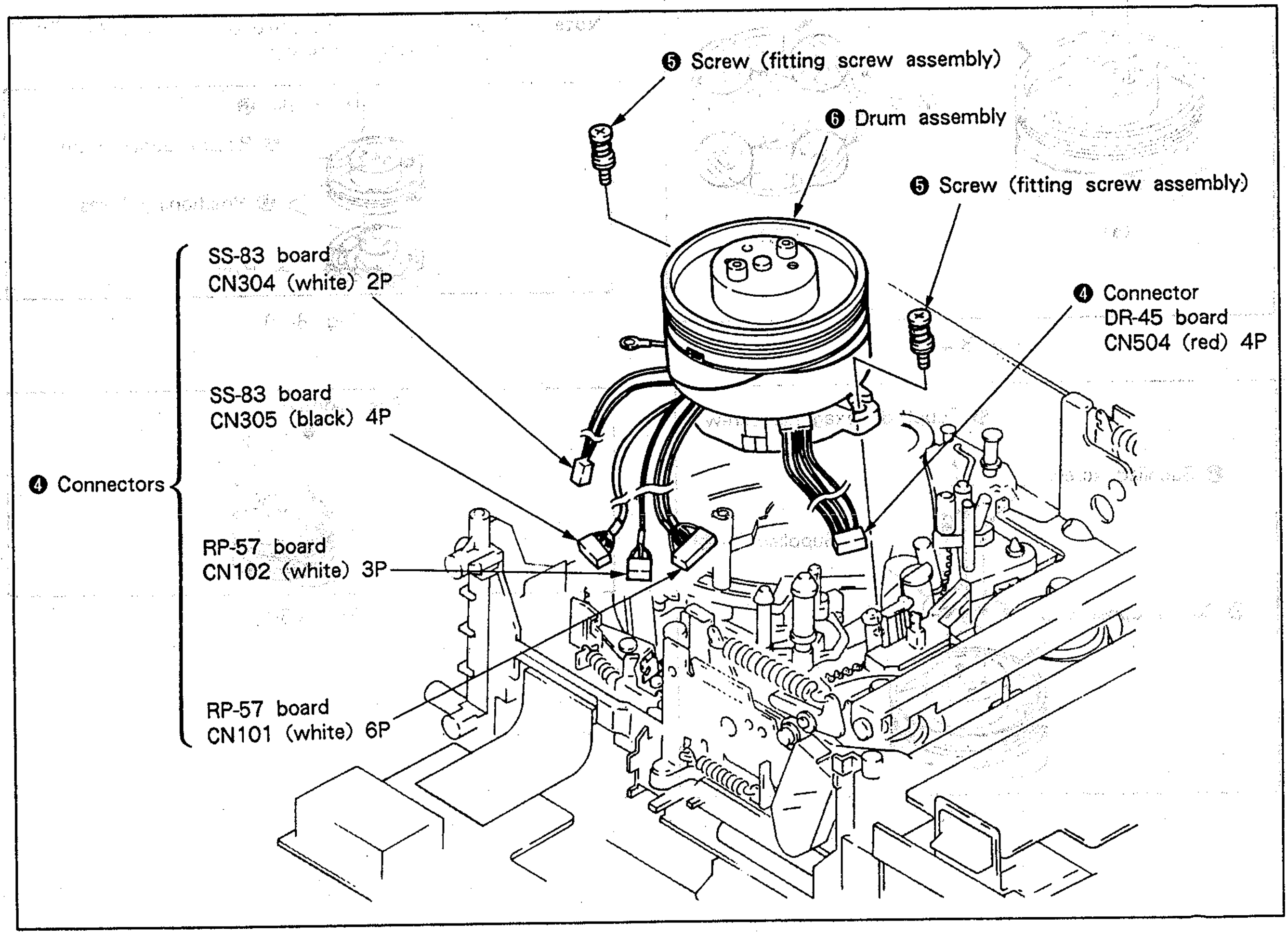

❺ Screw (fitting screw assembly)
❻ Drum assembly
❺ Screw (fitting screw assembly)
SS-83 board CN304 (white) 2P
❹ Connector DR-45 board CN504 (red) 4P
SS-83 board CN305 (black) 4P
❹ Connectors
RP-57 board CN102 (white) 3P
RP-57 board CN101 (white) 6P

Fig. 8-52.

8-3-19. Adjustment after Replacement of No.3 Guide and No.4 Guide

For replacement of both No.3 and No.4 guides, line up the tape along the upper flange after replacing. (Fig. 8-96.)

8-3-20. No.5 Guide Assembly

1. Removal (See Fig. 8-53.)

1) Remove the tape stopper according to 8-3-10. 1. Removal, 1).
2) Remove the three screws ❶ and remove the No.5 guide assembly.
3) Remove the guide nut ❷ and remove No.5 guide boss ❸, No.5 guide flange ❹, No.5 guide ❺ and spring ❻.

2. Mounting (See Fig. 8-53.)

1) Mount the spring ❻, No.5 guide ❺, No.5 guide flange ❹ and No.5 guide boss ❸ to the No.5 guide shaft ❼, and tighten the guide nut ❷.
2) Mount the No.5 guide assembly and tighten with the three screws ❶.
3) Mount the tape stopper according to 8-3-10. 2. mounting, 5).

Note : Be sure to perform 8-4. TAPE PATH ADJUSTMENT after mounting.

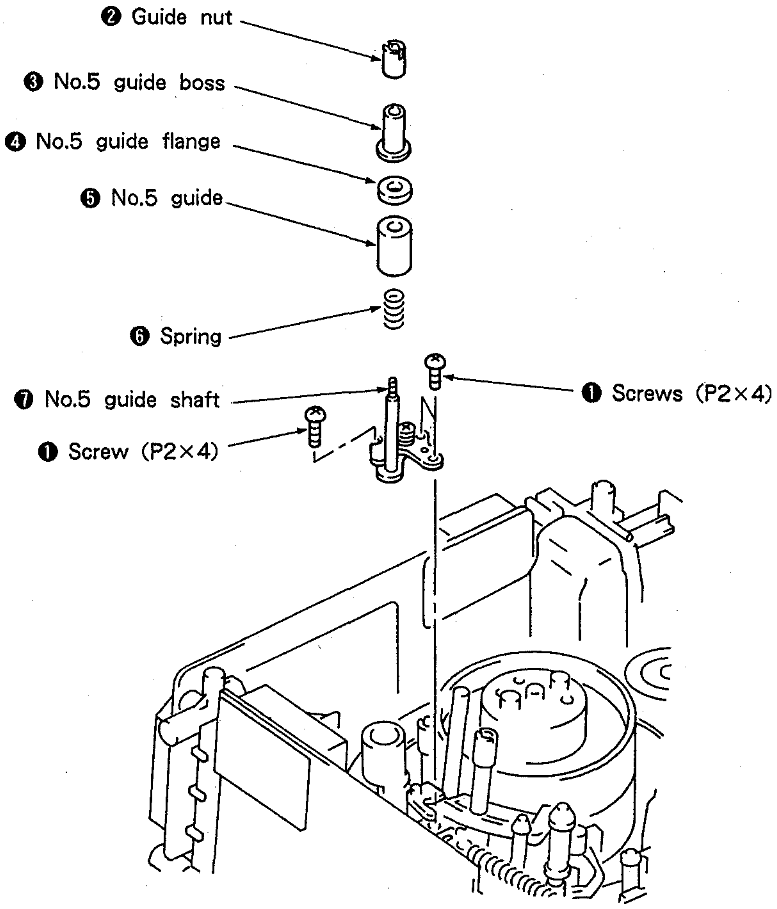

❷ Guide nut
❸ No.5 guide boss
❹ No.5 guide flange
❺ No.5 guide
❻ Spring
❼ No.5 guide shaft
❶ Screw (P2×4)
❶ Screws (P2×4)

Fig. 8-53.

8-3-21. FWD Back Tension Adjustment (See Fig. 8-54. and 8-55.)

Note : Prior to adjustment, have the tape run in FWD direction for more than 2 minutes.

1) Set to LOADING END , FWD mode.
2) Loosen band adjustment plate ❶ screw ❷ and move the band adjustment plate ❶ in the direction of arrow Ⓐ. And confirm that range of movement θ for No.1 guide.
3) Tighten the screw ❷ so that the position of No.1 guide cap is 1/3 θ. (See Fig. 6-54.)
4) Place tension measurement reel (Ref. No. J-7) ❹ on the S reel table assembly ❸ and set the tape along No.1 guide, No.2 guide, No.3 guide and the drum.
5) Pull dial tension gauge (Ref. No. J-6) ❺ in the direction of arrow Ⓑ and hook the spring ❼ onto the tension regulator spring hook assembly ❻ so that the value becomes 13.0±1 g, as shown below.
   Value too large : arrow Ⓒ direction
   Value too small : arrow Ⓓ direction

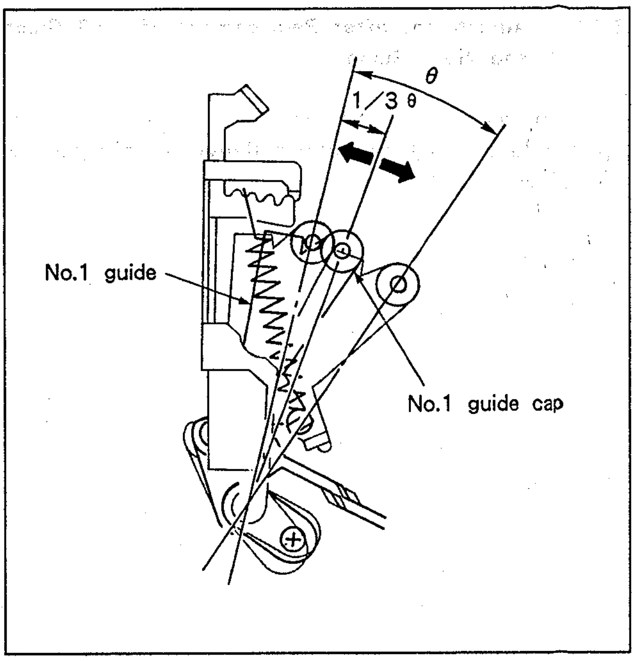

θ
1/3 θ
No.1 guide
No.1 guide cap

Fig. 8-54.

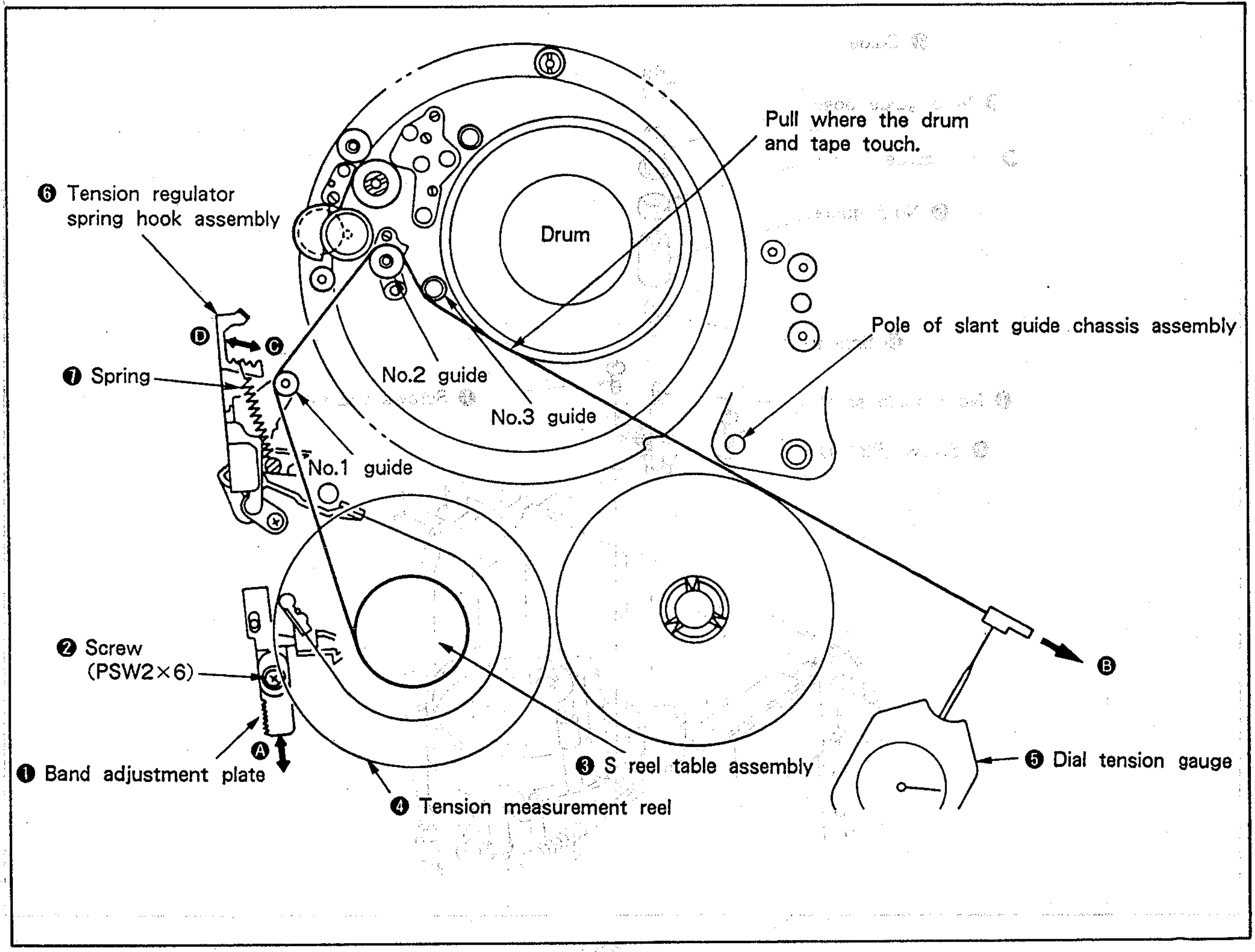

Pull where the drum and tape touch.
❻ Tension regulator spring hook assembly
Drum
Ⓓ
Ⓒ
❼ Spring
No.2 guide
No.3 guide
Pole of slant guide chassis assembly
No.1 guide
❷ Screw (PSW2×6)
Ⓐ
❶ Band adjustment plate
❸ S reel table assembly
❹ Tension measurement reel
Ⓑ
❺ Dial tension gauge

Fig. 8-55.

8-3-22. Check and Adjustment of Timing Belt Tension

1) Remove the timing belt. (See 8-3-15. 1. Removal, 1).)
2) Cover the LED portion of tape end sensor (DR-45 board) with vinyl tape and perform loading.
3) Short pin ③ of CN302 on the SS-83 board and GND. (See Fig. 8-56.)
4) Remove the pinch press arm side (round hook) of the tension spring attached to the pinch press arm assembly. (See Fig. 8-57.)
5) Push in the accidental erasure prevention pin of the RECOG switch, fix it with the tape and press the REC button to set to REC mode. (See Fig. 8-58.)
6) Measure the voltage (Vo) at both sides of R523 on the DR-45 board using a voltmeter (No lead state) (See Fig. 8-59.)
7) Mount the timing belt. (See 8-3-16. 2. Mounting, 4).)
8) Remove the driving gear B assembly according to 8-3-14. 1. Removal, 3).
9) Select the REC mode according to 5) and measure the voltage (Vx) at both sides of R523 as described in 6). (tension adjustment)
10) Confirm that the voltage (Vx) for tension adjustment is 22 mV to 44 mV higher than the voltage in the no load state (Vo). If not, adjust by the procedure described below.

    Adjustment Procedure :

    i) Loosen screw ❶ and slide the idler assembly in the direction of the arrow Ⓐ, then tighten with screw ❶. (See Fig. 8-60.)

    ii) Perform 9) and confirm again.

    iii) Repeat i) and ii) until the specifications are met.
11) Remove the short between Pin ③ of CN302 on the SS-83 board and GND.
12) Mount the driving gear B assembly and pinch press arm assembly tension spring. (See Fig. 8-57.)

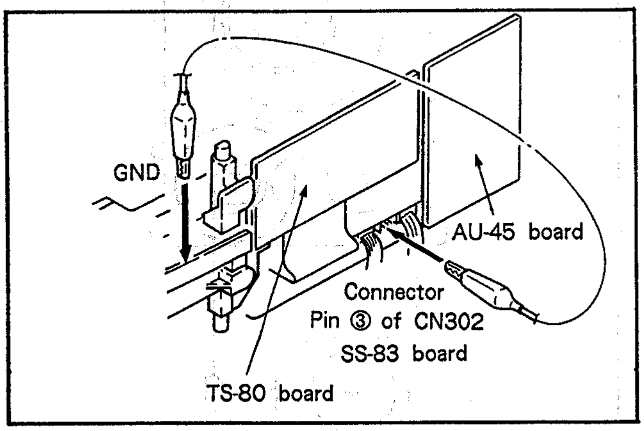


Fig. 8-56.

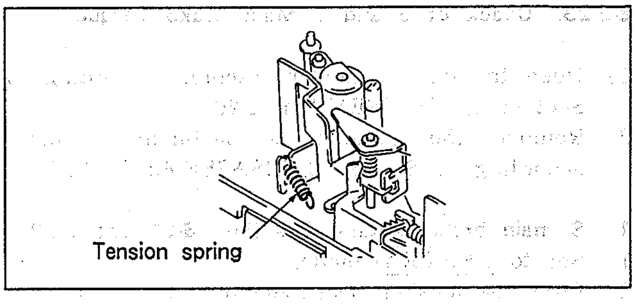


Fig. 8-57.

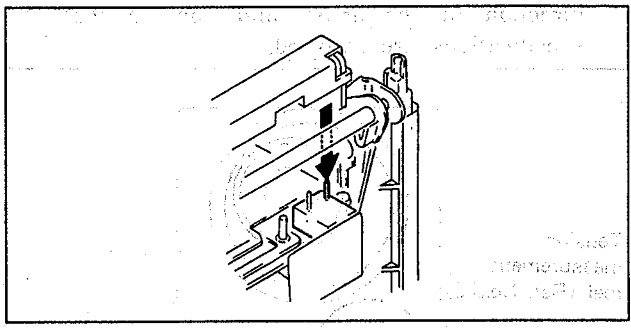


Fig. 8-58.

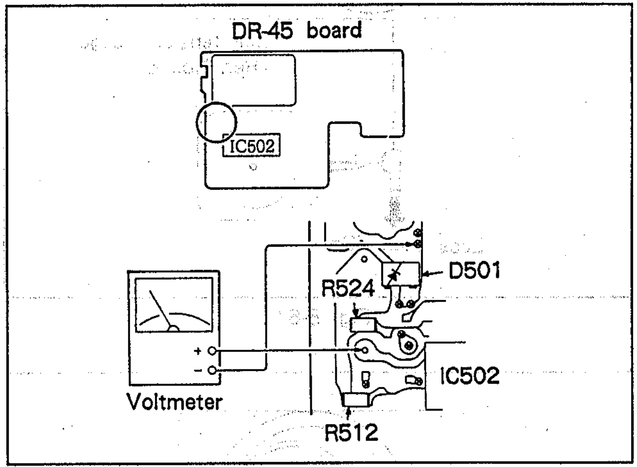


Fig. 8-59.

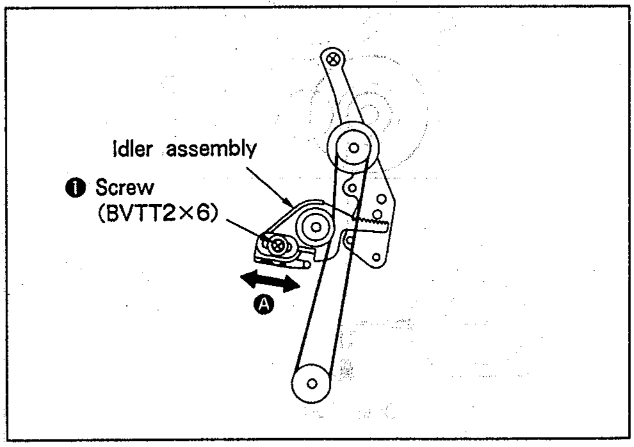


Fig. 8-60.

8-3-23. Check of S and T Main Brake Torque

1) Open the battery holder assembly according to Section 2. DISASSEMBLY 2-20.
2) Remove the cassette compartment assembly according to Section 2. DISASSEMBLY 2-12.

1. S main brake torque (See Figs. 8-61. and 8-62.)

1) Set to FF/REW mode.
2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
3) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the specifications are satisfied.

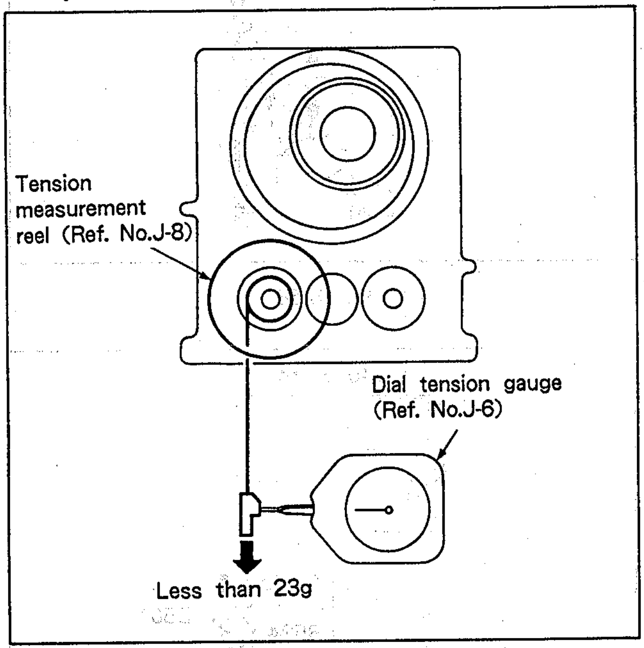

Tension measurement reel (Ref. No.J-8)
Dial tension gauge (Ref. No.J-6)
Less than 23g

Fig. 8-61.

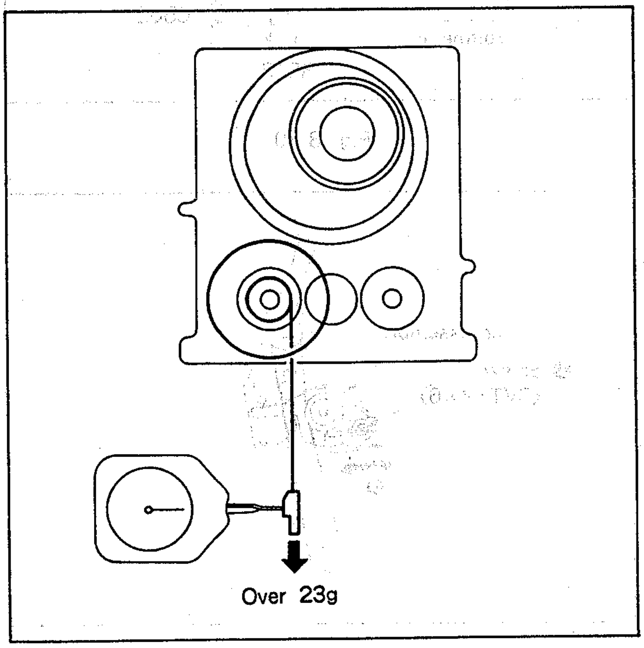


Fig. 8-62.

2. T main brake torque (See Figs. 8-63. and 8-64.)

1) Set to FF/REW mode.
2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
3) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the specifications are satisfied.

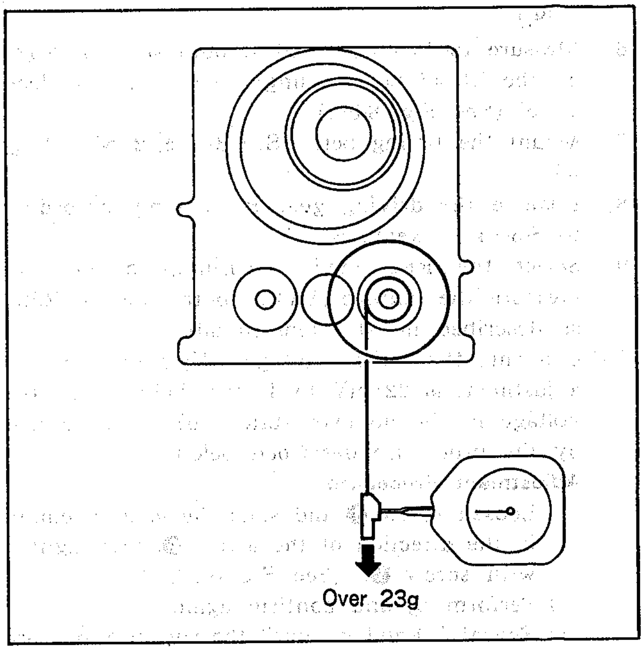


Fig. 8-63.

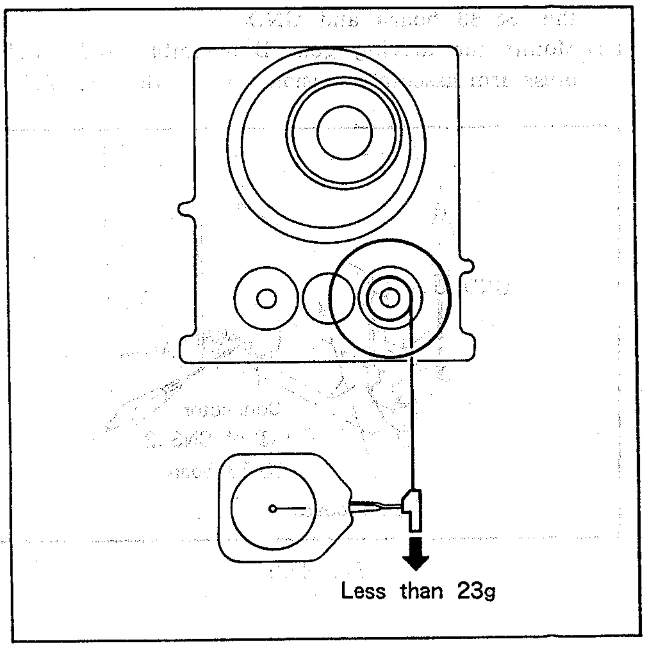

Less than 23g

Fig. 8-64.

8-3-24. Check of S and T Soft Brake Torque

1) Open the battery holder assembly according to Section 2. DISASSEMBLY 2-20.
2) Remove the cassette compartment assembly according to Section 2. DISASSEMBLY 2-12.

1. S soft brake torque (See Fig. 8-65.)

1) Set to FF/REW mode.
2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
3) Release the S main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the specifications are satisfied.

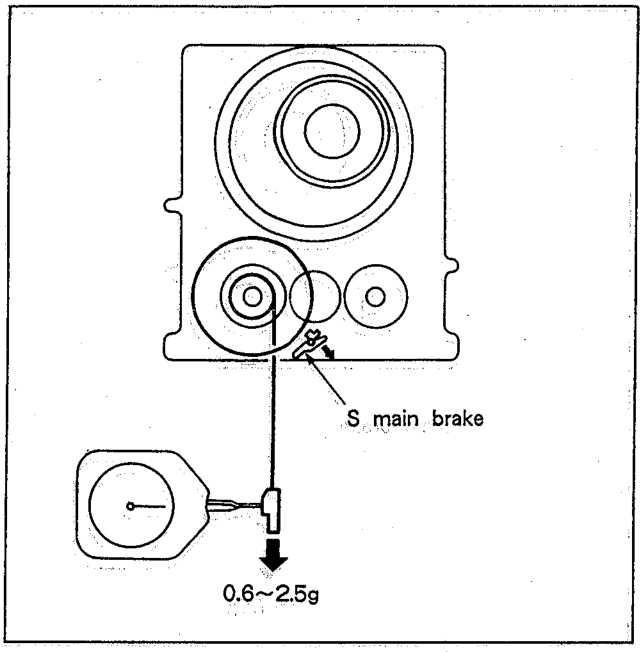


Fig. 8-65.

2. T soft brake torque (See Fig. 8-66.)

1) Set to REV mode.
2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
3) Release the T main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the specifications are satisfied.

Note : In REV mode, both T soft brake and REW brake are operated.

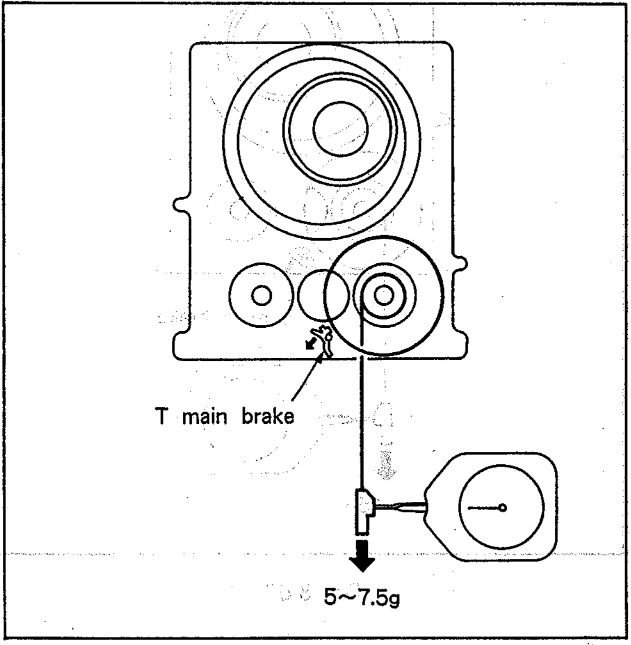


Fig. 8-66.

8-3-25. Check of REV and REW Brake Torque

1) Open the battery holder assembly according to Section 2. DISASSEMBLY 2-20.
2) Remove the cassette compartment assembly according to Section 2. DISASSEMBLY 2-12.

1. REV brake torque (See Fig. 8-67.)

1) Set to REV mode.
2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
3) Release the S main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the specifications are satisfied.

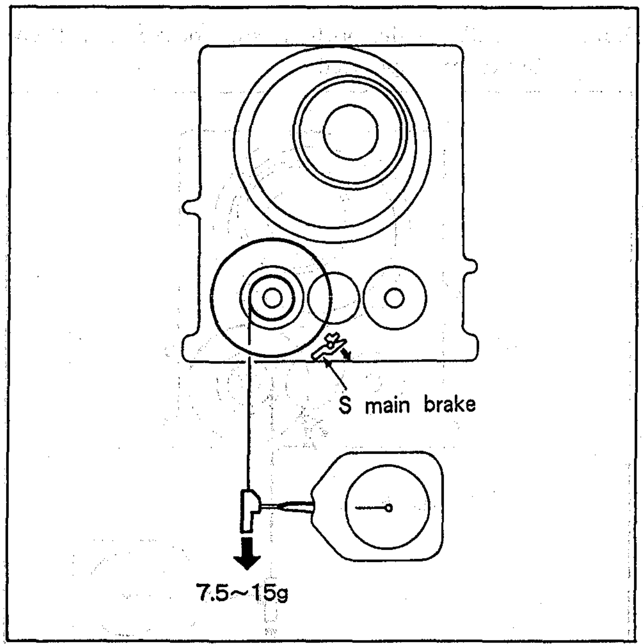


Fig. 8-67.

2. REW brake torque (See Fig. 8-68.)

1) Set to FF/REW mode.
2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
3) Release the T main brake with a finger.
4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the specifications are satisfied.

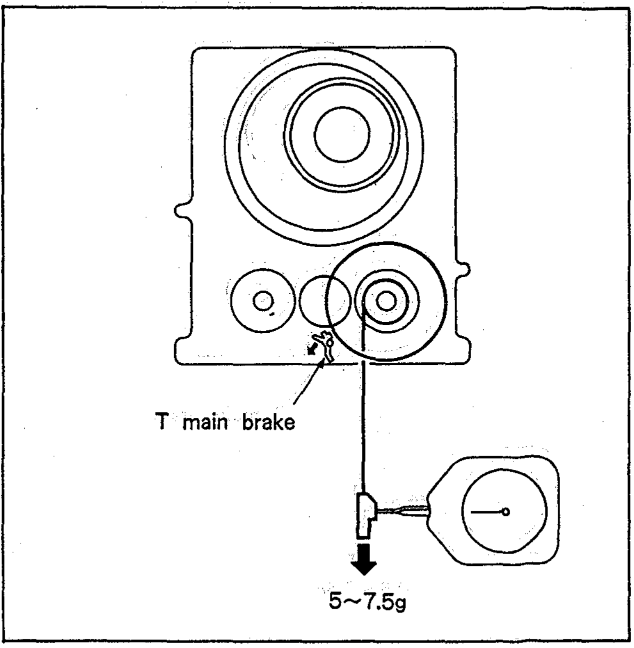


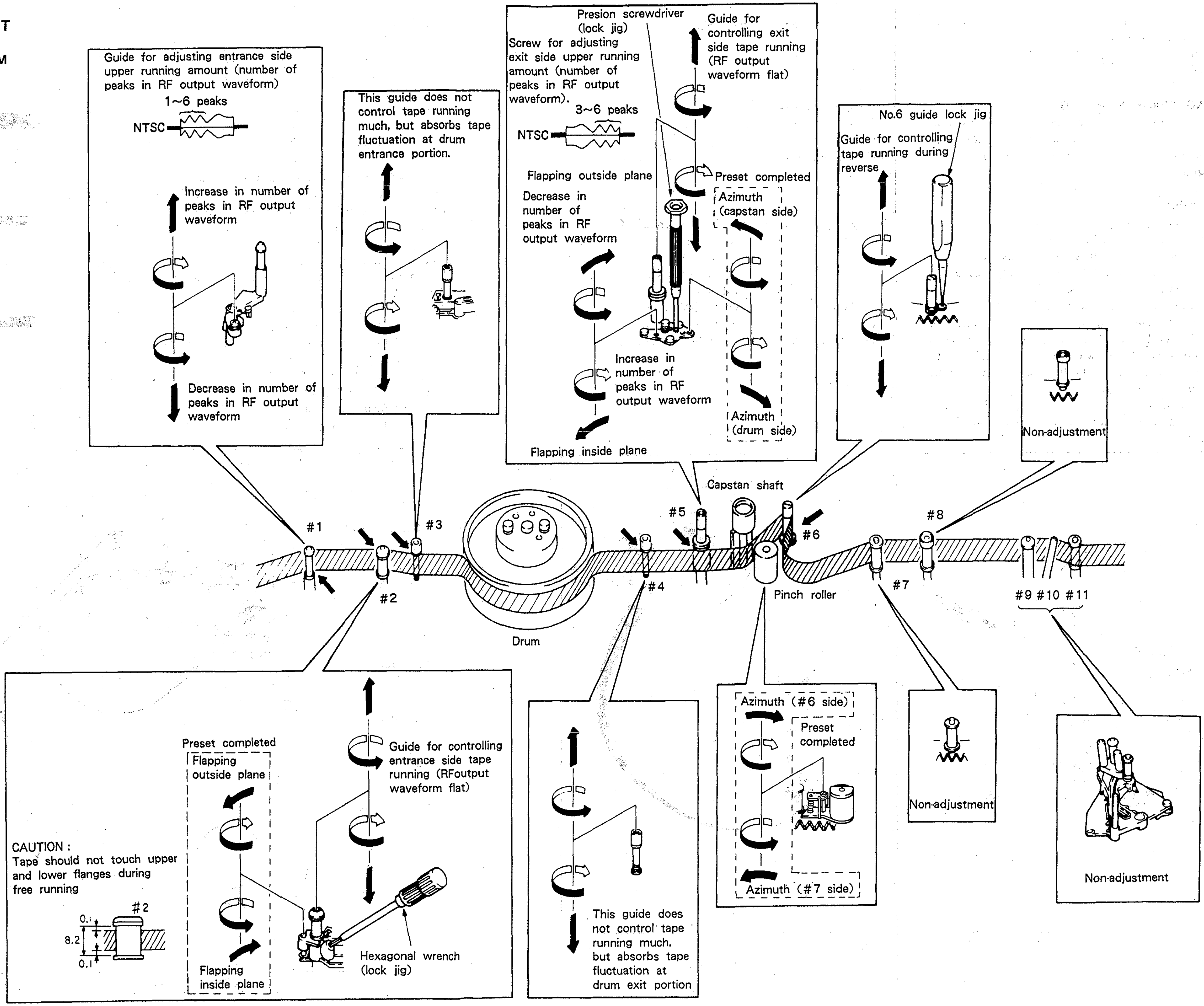
Fig. 8-68.

8-3-26. Check by FWD and RVS Winding Torque Cassette

1) Insert the FWD and RVS winding torque cassette (Ref. No. J-12).
2) Set to playback mode and confirm that T reel table torque is 9.5 to 15.5 g·cm.
3) Set to playback mode and confirm that the S reel table torque immediately after the REW button is pressed is 17 to 23 g·cm.
4) Replace on appropriate reel table if the above specifications are not satisfied.

8-4. TAPE PATH ADJUSTMENT

TAPE RUNNING SYSTEM DIAGRAM


Guide for adjusting entrance side upper running amount (number of peaks in RF output waveform)
1~6 peaks
NTSC
Increase in number of peaks in RF output waveform
Decrease in number of peaks in RF output waveform
This guide does not control tape running much, but absorbs tape fluctuation at drum entrance portion.
Presion screwdriver (lock jig)
Screw for adjusting exit side upper running amount (number of peaks in RF output waveform).
3~6 peaks
NTSC
Guide for controlling exit side tape running (RF output waveform flat)
Flapping outside plane
Preset completed
Decrease in number of peaks in RF output waveform
Azimuth (capstan side)
Increase in number of peaks in RF output waveform
Azimuth (drum side)
Flapping inside plane
No.6 guide lock jig
Guide for controlling tape running during reverse
Non-adjustment
Capstan shaft
#1
#2
#3
Drum
#4
#5
#6
Pinch roller
#7
#8
#9 #10 #11
Preset completed
Flapping outside plane
Flapping inside plane
Guide for controlling entrance side tape running (RFoutput waveform flat)
Hexagonal wrench (lock jig)
#2
0.1
8.2
0.1
This guide does not control tape running much, but absorbs tape fluctuation at drum exit portion
Azimuth (#6 side)
Preset completed
Azimuth (#7 side)
Non-adjustment
Non-adjustment

CAUTION :
Tape should not touch upper and lower flanges during free running

- Perform this adjustment after confirming that Section 7. CAMERA SECTION ADJUSTMENT and Section 9. VIDEO SECTION ADJUSTMENT are completed.

[REGARDING TRACK SHIFT JIG]

The 8 mm video system employs a high precision tracking ATF (auto track finding) which instantaneously controls the tape running speed with the four kinds of pilot signals. In this way, the tracking adjustment knob becomes unnecessary, and accurate tracing has become possible.

On the other hand however, there has been difficulty in adjusting the tape path system with the ATF method, that is it was impossible to make a perfect adjustment because the ATF automatically corrected even small head-tracing errors.

Because of this, adjustment is carried out to the tape path system by using the track shift jig (Ref. No. J-6080-891-A). As the track shift jig forcibly releases the ATF and sets the tracking amount (track shift) manually, the adjustment of the tape path system can easily be carried out.

- Previous track shift & monitor jig (J-6080-843-A) also can be used, Use the specified connection cord for connection.

8-4-1. Connection of Track Shift Jig

(For details, see the INSTRUCTION MANUAL OF TRACK SHIFT JIG.)

[Connector Connection]

Connector the track shift jig and this unit as shown in Fig. 8-69.

Connect RF/SWP connector to CN104 on RP-57 board, and the CTL connector to CN507 on TS-80 board.

[Position setting of respective switches]

SEL switch··················When performing track shift, set to ON. At OFF position it becomes control of the this unit side.

PATTERN switch·······Set to EV side.

ATF ADJ·····················Set to OFF side.

Other switches are not used when adjusting the unit.

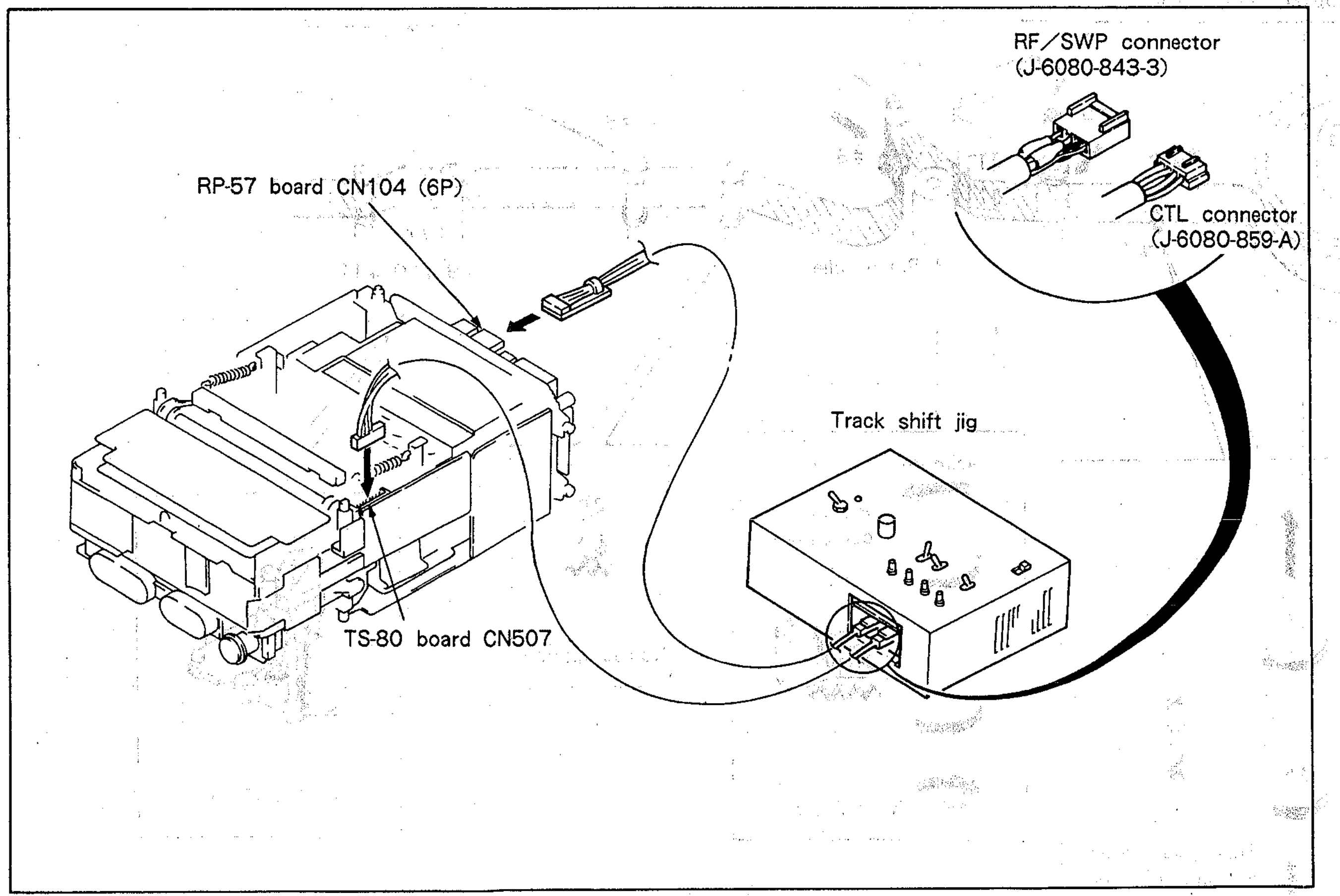
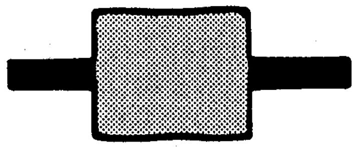


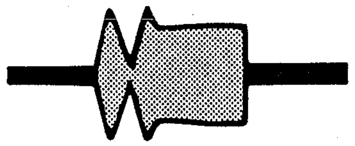
Fig. 8-69. Connection of track shift jig

8-4-2. Preparation for Adjustment

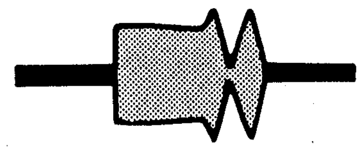
1) Perform cleaning of the tape running surface (the individual tape guides, drum, capstan shaft and pinch roller).
2) Connection of oscilloscope
   1ch : CH2 checking pin of track shift jig
   External trigger : RF SWP checking pin of track shift jig
3) Set the SEL switch of the track shift jig to OFF, then play back the alignment tape (WR5-1N) for tracking, and confirm that the RF waveform of both the entrance and exit sides become flat (Fig. 8-70. ⓐ).
   If the RF waveform of both sides is not flat, the adjustment should be carried out as described below.
   - In case the RF waveform on the entrance side is not flat (Fig. 8-70. ⓑ)
     ········Perform the adjustment according to 8-4-3. Entrance Side Adjustment.
   - In case the RF waveform on the exit side is not flat (Fig. 8-70. ⓒ)
     ········Perform the adjustment according to 8-4-4. Exit Side Adjustment.



ⓐ Normal



ⓑ Entrance side is defective



ⓒ Exit side is defective

Fig. 8-70.

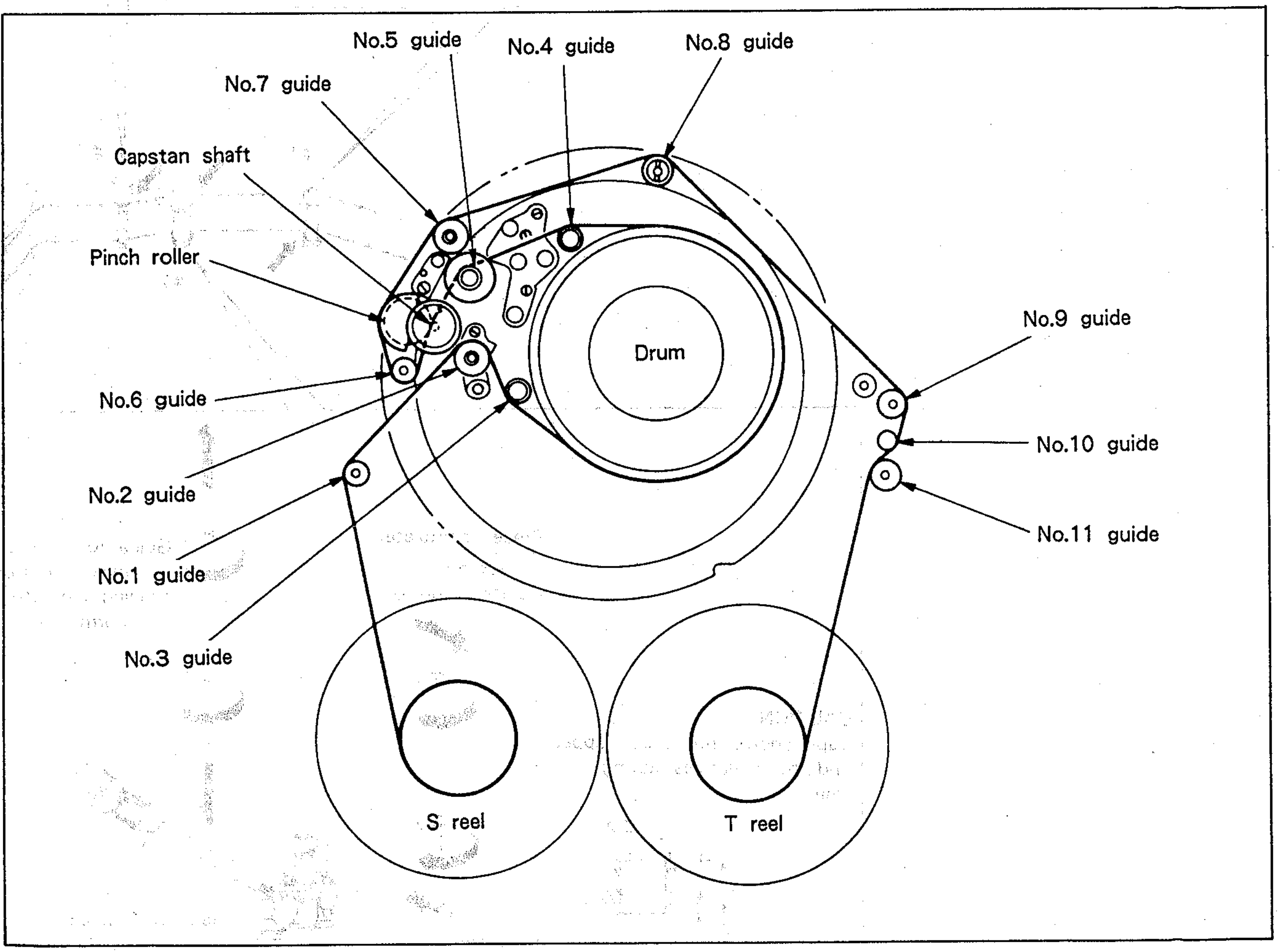


Fig. 8-71. Tape guide arrangement diagram

8-4-3. Entrance Side Adjustment

1) Play back the alignment tape (WR5-1N) for tracking and loosen No.2 guide lock screw ❶, and turn No.2 and No.3 guides counterclockwise to free tape running on the entrance side (See Fig. 8-72.)

   Note : Since the space between the top and bottom flanges of No.2 guide is narrow, confirm that the tape is touching neither top nor bottom flanges at this point. Note that if No.2 guide is loosened too much, the tape touches the bottom flange and the RF waveform on the entrance side exceeds the original free waveform.

2) Confirm that the RF waveform on the entrance side has 1 to 6 peaks in this condition. If not, adjust as follows. (See Fig. 8-73.)

   <less than 1 peak>

   Adjust the No.2 guide zenith screw ❷ by turning it counterclockwise 90° at a time. (See Fig. 8-72.)

   <more than 6 peaks>

   Adjust the height adjustment screw of No.1 guide (tension regulator arm assembly) by turning it counterclockwise 90° at a time. (See Fig. 8-74.)

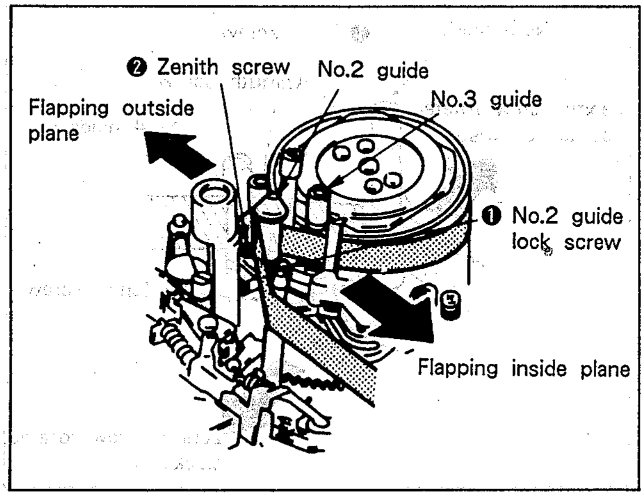

❷ Zenith screw
No.2 guide
Flapping outside plane
No.3 guide
❶ No.2 guide lock screw
Flapping inside plane

Fig. 8-72.

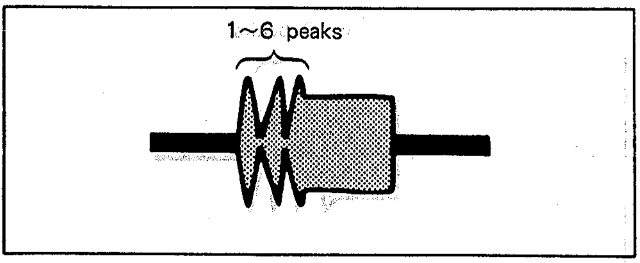


Fig. 8-73.

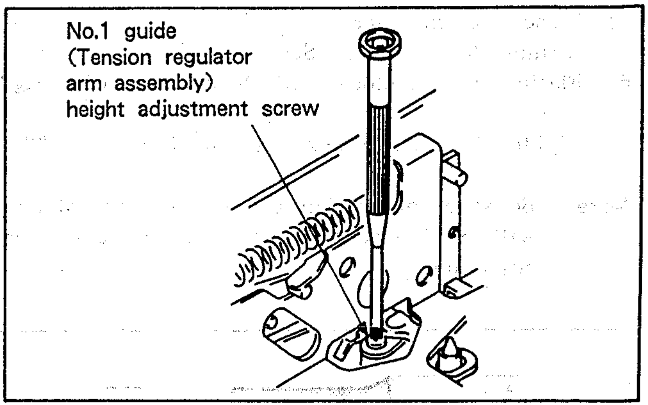

No.1 guide
(Tension regulator
arm assembly)
height adjustment screw

Fig. 8-74.

3) Slowly turn the No.2 guide clockwise to make the entrance side waveform approximately flat. (Fig. 8-75.)

   Note : Do not turn No.2 guide excessively.

4) Set the SEL switch of the track shift jig to ON, then turn the track shift knob until the RF waveform amplitude becomes 2/3. (See Fig. 8-76.)

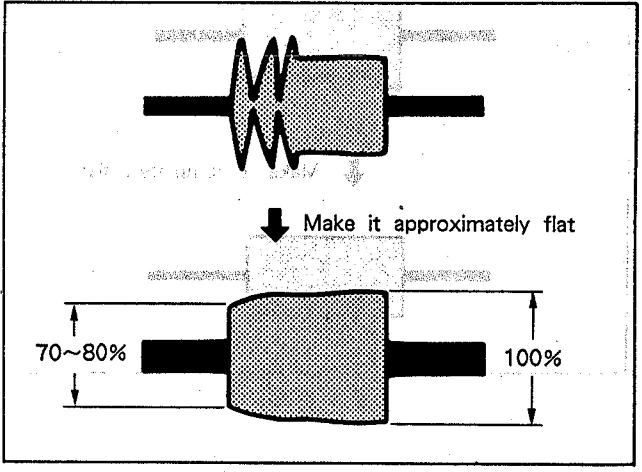

Make it approximately flat
70~80%
100%

Fig. 8-75.

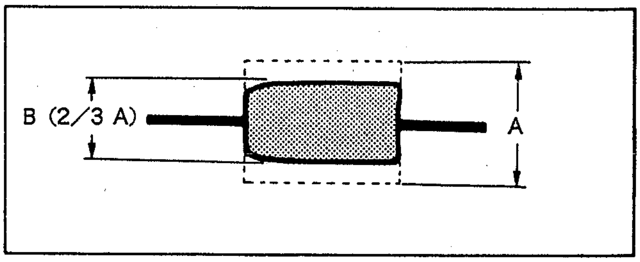


Fig. 8-76.

5) Raise the entrance side waveform slightly by turning No.2 guide. (See Fig. 8-77.)
6) Flatten the waveform with No.3 guide. (See Fig. 8-78.)
7) Tighten No.2 guide lock screw ❶. (See Fig. 8-72.)

Note : Be sure to perform checking in accordance with 8-4-5. Checking After Adjustment after adjustment.

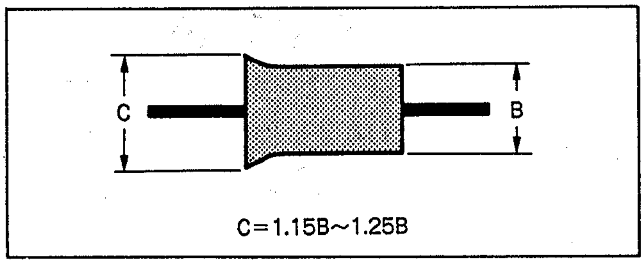

C
B
C=1.15B~1.25B

Fig. 8-77.

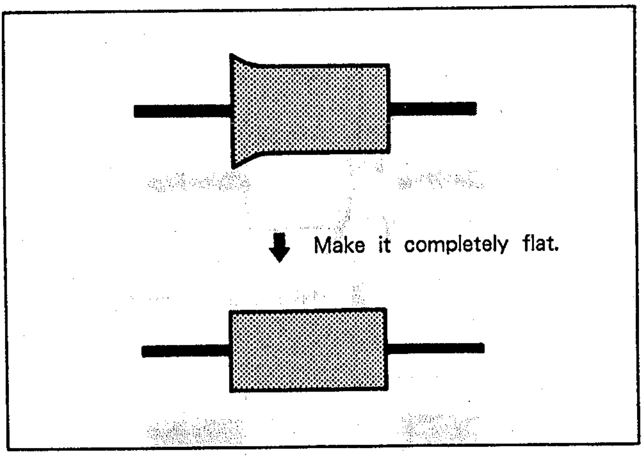

Make it completely flat.

Fig. 8-78.

8-4-4. Exit Side Adjustment

1) Play back the alignment tape (WR5-1N) for tracking and turn No.4 guide and No.5 guide counterclockwise to make the tape running on the exit side free. (See Fig. 8-79.)
   Note : • If the No.5 guide nut does not loosen (it is locked with screw-paint), dissolve the paint with alcohol.
   • Confirm that the tape is not touching the bottom of flanges of No.5 guide during free tape running.
2) Confirm that the RF waveform on the exit side has 3 to 6 peaks in this condition. If not, readjust as follows. (See Fig. 8-80.)
   〈If off standard〉
   i) Turn the lock screw ❶ counterclockwise to loosen.
   ii) Slowly turn the zenith screw ❷ 45° at a time and wait until the RF waveform varies.
   iii) Rotate the lock screw ❶ clockwise to tighten. (See Fig. 8-79.)
   Note : • The waveform varies if the lock screw is tightened too strongly. Tighten moderately.
   • Never turn the azimuth screw of No.5 guide.

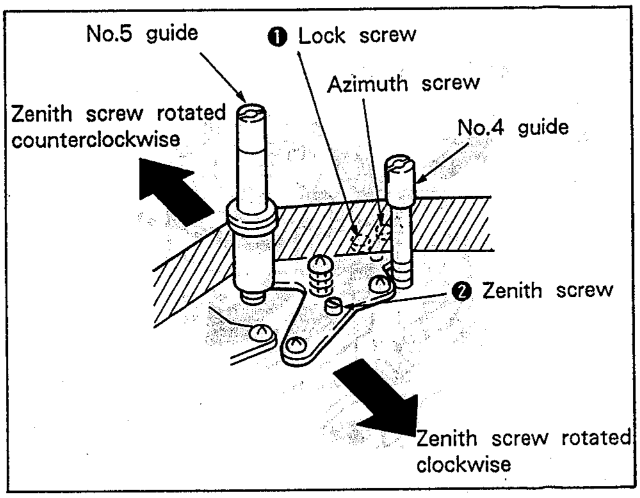

No.5 guide
❶ Lock screw
Azimuth screw
Zenith screw rotated counterclockwise
No.4 guide
❷ Zenith screw
Zenith screw rotated clockwise

Fig. 8-79.

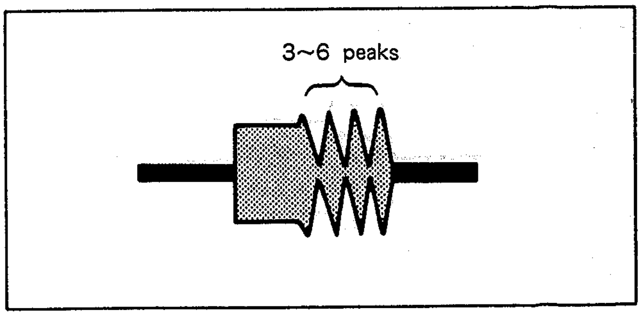


Fig. 8-80.

3) Turn the No.5 guide clockwise to make the RF waveform on the exit side approximately flat. (Fig. 8-81.)

Note :The waveform reaction is slow against nut rotation. Turn the nut after the waveform variations are stabilized.

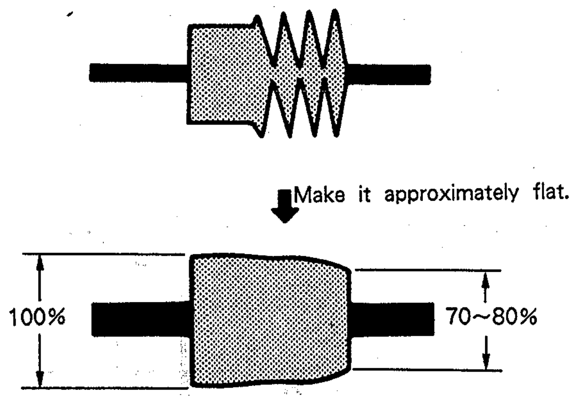

Make it approximately flat.
100%
70~80%

Fig. 8-81.

4) Set the SEL switch of the track shift jig to ON, then turn the track shift knob until the RF waveform amplitude becomes 2/3. (See Fig. 8-82.)

5) Raise the exit side waveform slightly by turning No.5 guide. (See Fig. 8-83.)

6) Turn No.4 guide so that waveform is flat. (See Fig. 8-84.)

Note : Be sure to perform checking in accordance with 8-4-5. Checking After Adjustment after adjustment.

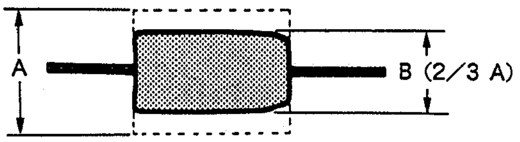
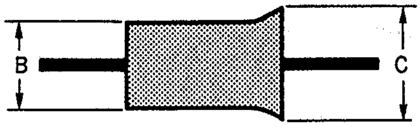


Fig. 8-82.



C=1.15B~1.25B

Fig. 8-83.

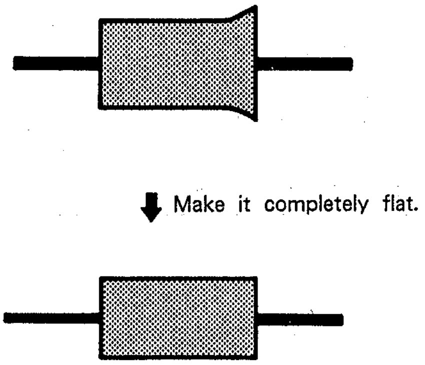

Make it completely flat.

Fig. 8-84.

8-4-5. Checking After Adjustment

1. Tracking check

1) Play back the alignment tape (WR5-1N) for tracking.
2) Set the SEL switch of the track shift jig to ON, and turn the track shift knob until the RF waveform amplitude becomes 2/3. (See Fig. 8-85.)
3) Confirm that the RF waveform amplitude minimum value (EMIN) at this time is more than 80% of maximum value (EMAX). (See Fig. 8-86.)
4) Confirm that the fluctuation amount of both RF waveform entrance and exit sides are as shown in Fig. 8-87.
5) Set the SEL switch of the track shift jig to OFF.
6) Set to the REV mode and confirm that the waveform noise pitches are uniform. If not, adjust as follows. (See Fig. 8-88.)

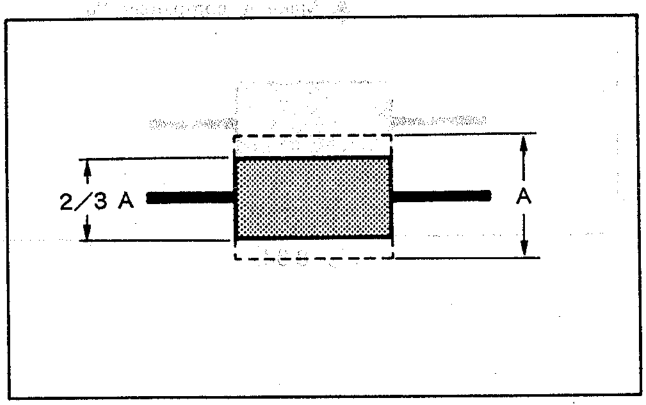
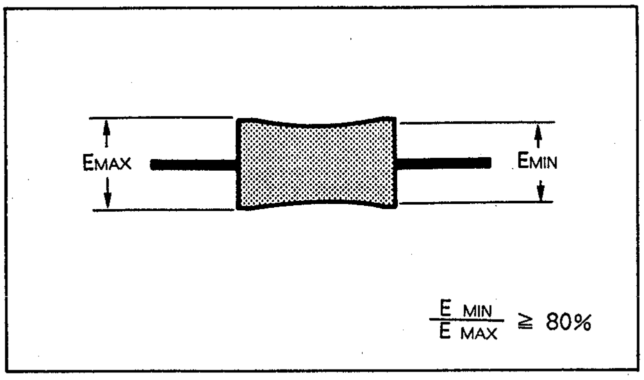
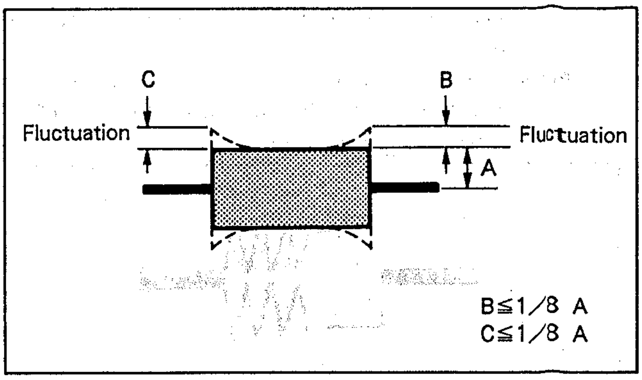


Fig. 8-85.



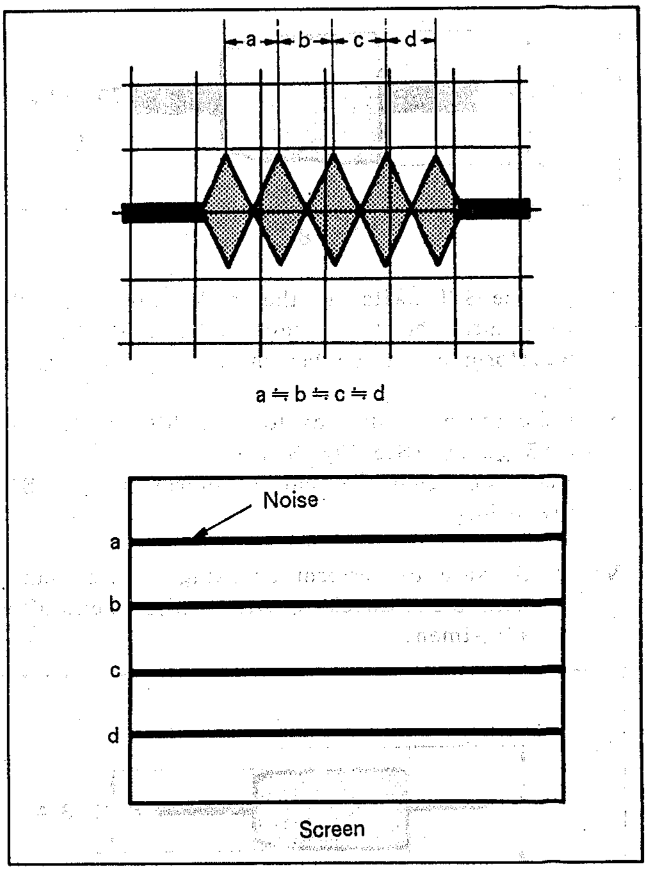
$\frac{E_{MIN}}{E_{MAX}} \geqq 80\%$

Fig. 8-86.



B≦1/8 A
C≦1/8 A

Fig. 8-87.



a≒b≒c≒d

Fig. 8-88.

〈Narrow noise pitch on entrance side (upper screen)〉
(See Fig. 8-89.)
Confirm that the RF waveforms are flat in the PLAYBACK mode.

Waveform is not flat :
Perform height adjustment of No.2 guide and No.3 guide according to 8-4-3. Entrance Side Adjustment.

Waveform is flat :
Perform height adjustment of No.1 guide and zenith adjustment of No.2 guide according to 8-4-3. Entrance Side Adjustment.

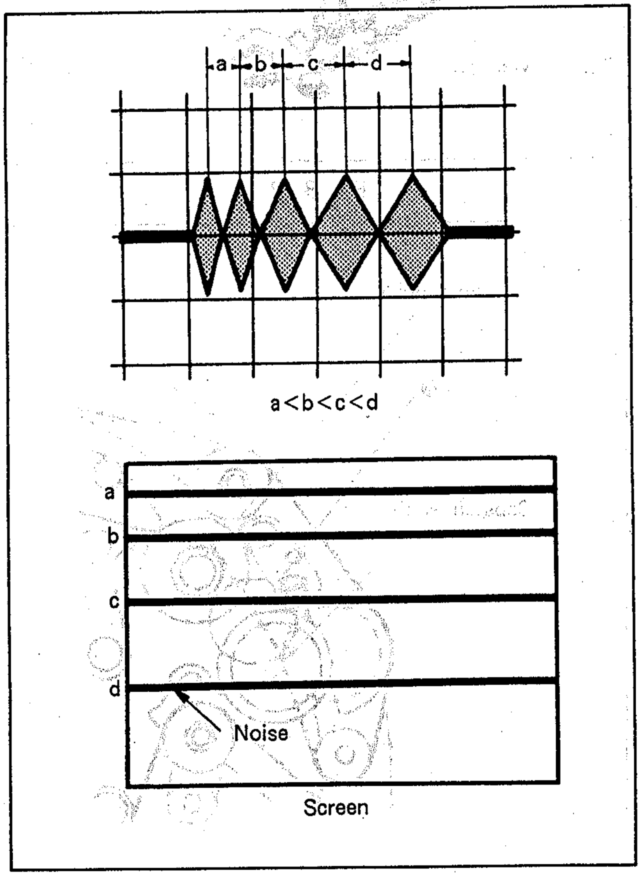


Fig. 8-89.

〈Narrow noise pitch on exit side (lower screen)〉
(See Fig. 8-90.)
Set to the PLAYBACK mode and perform height adjustment of No.4 guide and No.5 guide according to 8-4-4. Exit Side Adjustment.

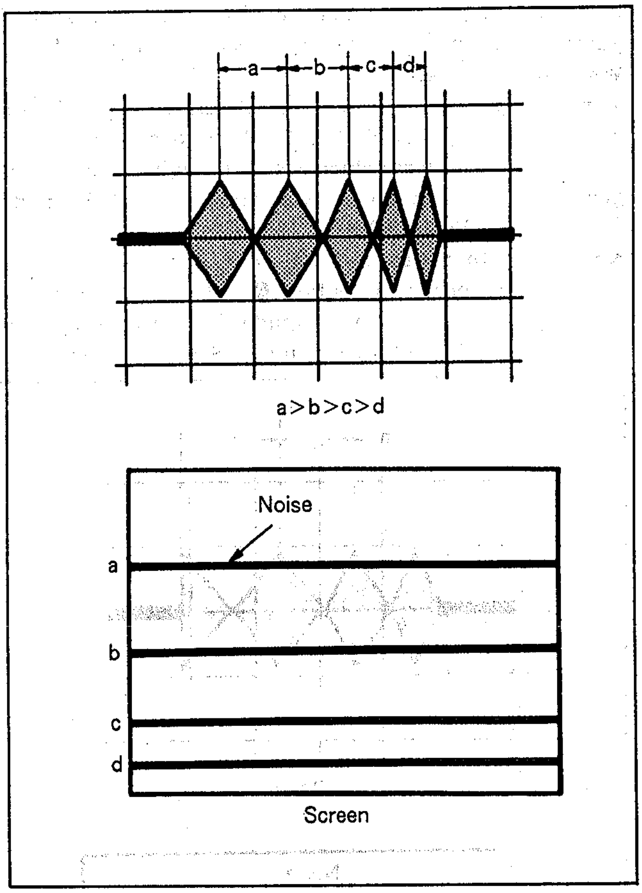


Fig. 8-90.

⟨Wide noise pitch on exit side (lower screen)⟩
(See Fig. 8-91.)
Set to the PLAYBACK mode and confirm that the RF waveform is flat.

Waveform is not flat :
Perform height adjustment of No.4 guide and No.5 guide according to 8-4-4. Exit Side Adjustment.

Waveform is flat :
Turn the guide lower gear counterclockwise with No. 6 guide lock jig (Ref. No. J-11) to loosen, and turn No.6 guide counterclockwise 45° to tighten the lower gear. Confirm the RF waveform of the REV mode again. (See Fig. 8-92.)

Note : If No.6 guide is raised too much, wrinkles may occur in section Ⓐ between the capstan shaft and No.5 guide. Confirm that no wrinkles are occurring. (See Fig. 8-93.)

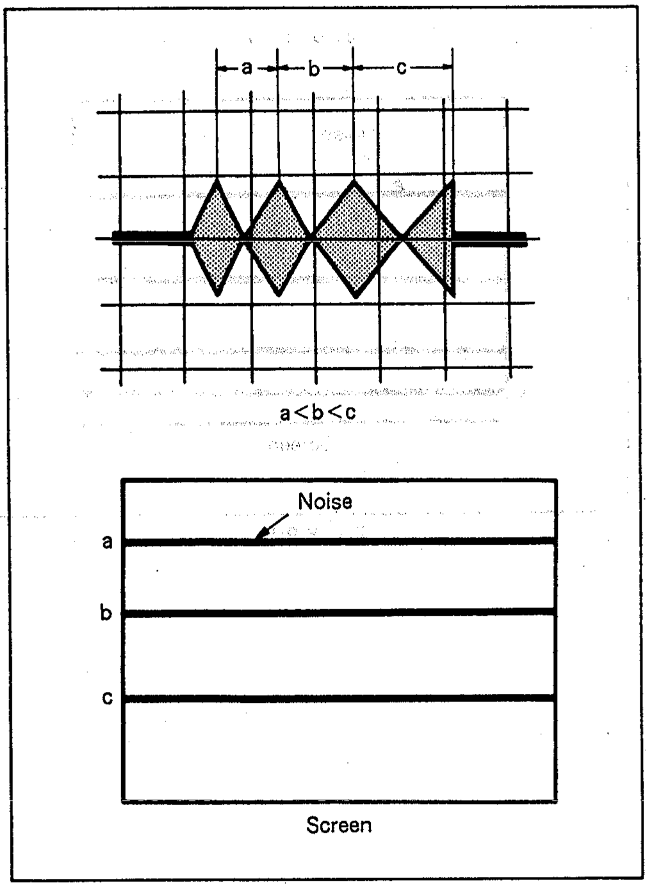

a
b
c
a<b<c
Noise
a
b
c
Screen

Fig. 8-91.

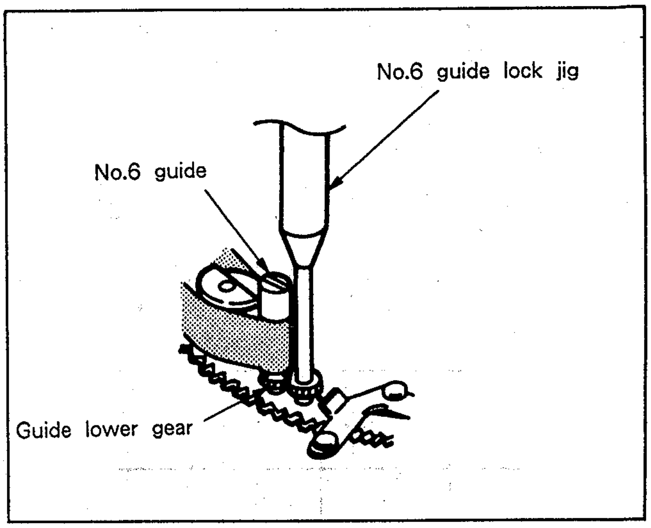

No.6 guide lock jig
No.6 guide
Guide lower gear

Fig. 8-92.

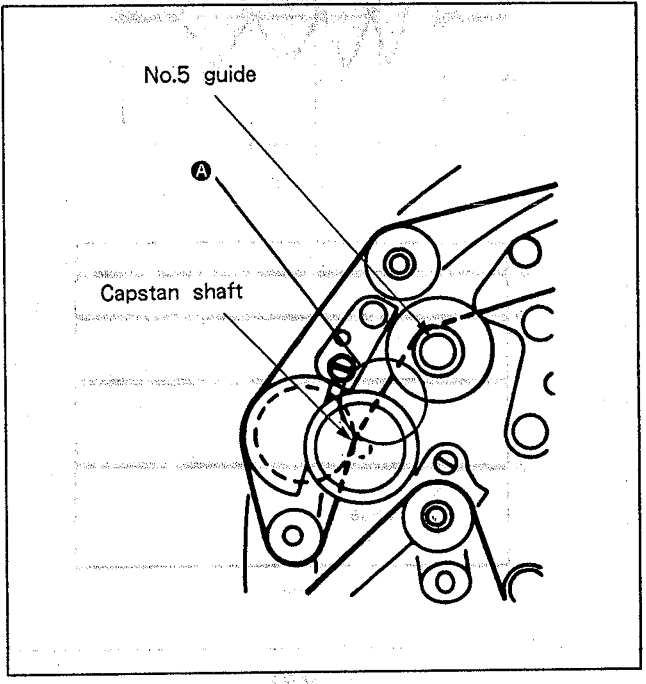

No.5 guide
Ⓐ
Capstan shaft

Fig. 8-93.

2. Checking of rising edge

1) Confirm that the RF waveform rises horizontally during playback after completing loading, after CUE/REV, and during playing back after FF. If not, adjust as follows.

〈In case noise occurs on the exit side (lower screen) at rising of playback after completing loading〉 (See Fig. 8-94.)
Confirm that the FWD back tension is not too low.
If too low :
Readjust according to 8-3-21. FWD Back Tension Adjustment.
If normal :
Turn the azimuth screw of the pinch roller clockwise 5° at a time and adjust while rechecking the rising edge. (See Fig. 8-95.)

〈In case noise occurs on the exit side (lower screen) at rising of playback after REV〉 (See Fig. 8-94.)
Loosen the guide lower gear of No.6 guide using No. 6 guide lock jig, turn No.6 guide 90° counterclockwise to tighten the guide lower gear, then recheck the rising edge.
Note : If No.6 guide is raised too much, wrinkles may occur between the capstan shaft and No. 5 guide (in section Ⓐ of Fig. 8-93.). Confirm that no wrinkles are occurring.

〈In case noise occurs on the exit side (lower screen) at rising of playback after FF〉 (See Fig. 8-94.)
Confirm that the FWD back tension is not too low.
If too low :
Readjust according to 8-3-21. FWD Back Tension Adjustment.
If normal :
Turn the azimuth screw of the pinch roller clockwise approx. 5° at a time and adjust while rechecking the rising edge. (See Fig. 8-95.)
Note : After finishing adjustment, be sure to check rising of playback following to completion of loading.

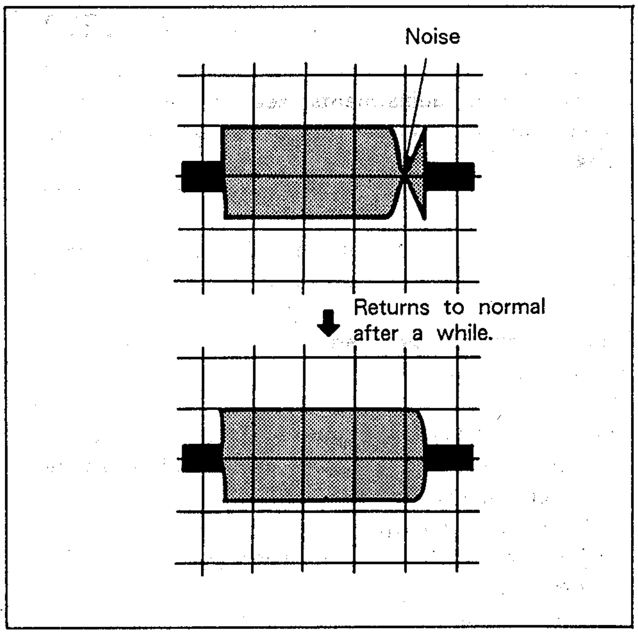

Noise
Returns to normal after a while.

Fig. 8-94.

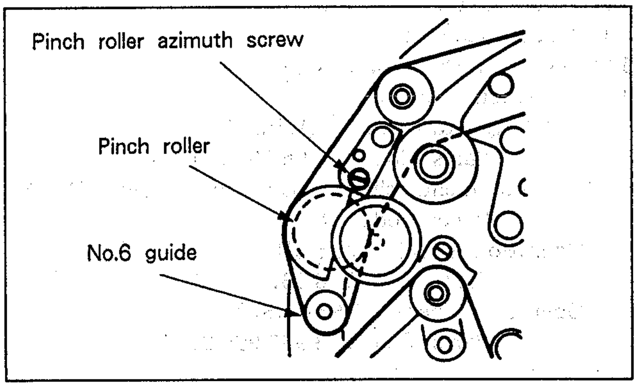

Pinch roller azimuth screw
Pinch roller
No.6 guide

Fig. 8-95.

3. Tape running check

In PLAYBACK and REV modes, confirm the following for the flange sections (arrows in Fig. 8-96.) of guides No.1 to No.6 : there should be no gaps and the tape should not be curled more than 0.3 mm at tape guides No.1, No.2 and No.5, and there should be neither gaps nor curls at guides No.3, No.4 and No.6.

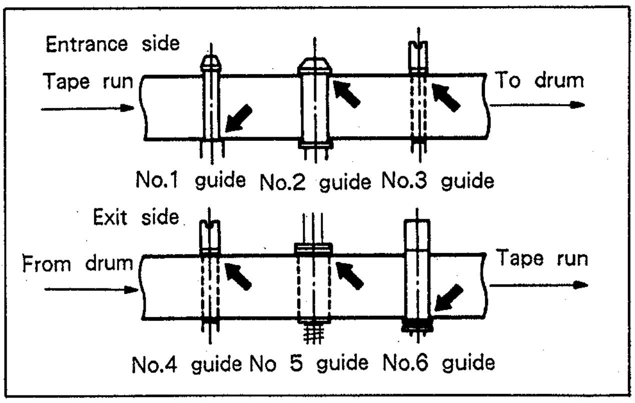

Entrance side
Tape run
To drum
No.1 guide
No.2 guide
No.3 guide
Exit side
From drum
Tape run
No.4 guide
No 5 guide
No.6 guide

Fig. 8-96.

SECTION 9
VIDEO SECTION ADJUSTMENTS

During these adjustments, see the parts arrangement diagram relevant to the adjustment on page 354.

For the adjustment of the VTR block, use the following measuring instruments.

[Instruments to be used]

1) Monitor TV
2) AC pack
3) Dual trace oscilloscope of over 10 MHz band which incorporates delay mode (Unless otherwise specified, use 10 : 1 probe.)
4) Frequency counter
5) Pattern generator incorporates video output terminal
6) Digital voltmeter
7) Audio generator
8) Audio level meter
9) Audio distortion meter
10) Audio attenuator
11) Regulated-DC power supply
12) Alignment tape
    - Tracking Adjustment (WR5-1N)
      Parts Code : 8-967-995-01
    - Video frequency characteristics adjustment (WR5-2N)
      Parts Code : 8-967-995-11
    - Operation check (WR5-3NL)
      Parts Code : 8-967-995-31
    - Operation check (WR5-3NSP)
      Parts Code : 8-967-995-22

[Precautions on Adjustment]

Adjustment of the video section is made with the camera and EVF sections removed, with the exception of "Battery down adjustment" which is part of system control system adjustment. Remove the following six connectors when removing the camera and EVF sections.

1. SS-83 board CN303 (3P, white)
2. SS-83 board CN308 (7P, white)
3. PC-32 board CN008 (2P, red)
4. EM-2 board CN407 (4P, white)
5. CC-13 board CN901 (2P, yellow)
6. CC-13 board CN906 (3P, white)

When the following parts get in the way, remove the respective connectors to allow easy adjustment. (The level meter is only needed for level meter adjustment.)

1. Stereo microphone unit
   →PC-32 board CN003 (4P, white)
2. AUDIO DUB switch board (DL-22 board)
   →PC-32 board CN013 (3P, white)
3. Headphone VR
   →PC-32 board CN006 (3P, yellow)
4. Narration microphone unit
   →AU-45 board CN402 (2P, white)
5. Narration microphone switch board (MS-11 board)
   →AU-45 board CN401 (2P, red)
6. Level meter (ME-5 board)
   →PC-32 board CN031 (4P, yellow)

When adjusting the video system (VI-46 board) and performing "Motor Power Voltage Adjustment" and "ATF BPF Balance Adjustment" of the servo system, it is necessary to open the VI-46, AU-45, and RP-57 boards. For this, the PC-32 board (PCM audio board) is removed and adjustment is performed. At this time, the following six connectors must at least be removed. (However, the PC-32 board must be connected for "AFM Recording Current Adjustment" and "PCM Recording Current Adjustment".)

1. PC-32 board CN001 (9P, flexible board)
2. PC-32 board CN002 (14P, flexible board)
3. PC-32 board CN004 (7P, white)
4. PC-32 board CN007 (2P, white)
5. PC-32 board CN012 (6P, yellow)
6. PC-32 board CN030 (2P, black)

Note : GND on the AU-45 board will be disconnected when the PC-32 board is removed.
Therefore, connect the following places using jumper wires.
1. Pin ⑦ of W402 on AU-45 board
   —— TP101 on RP-57 board.

[Connection of instruments]

Unless otherwise specified, perform the adjustment by connecting the measuring instruments as shown in figure below.

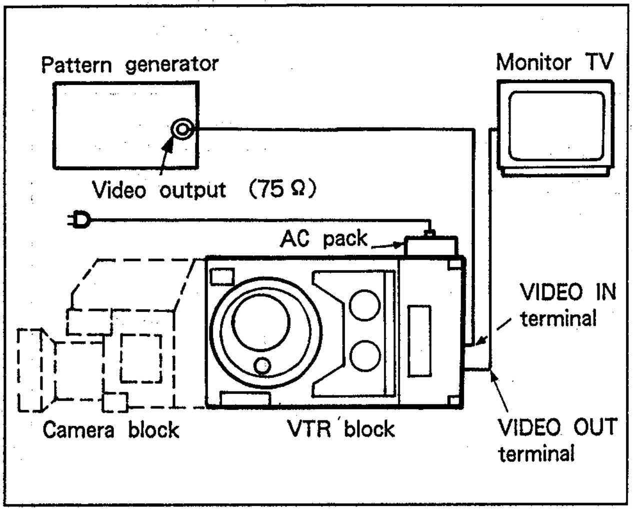

Pattern generator
Monitor TV
Video output (75 Ω)
AC pack
VIDEO IN terminal
Camera block
VTR block
VIDEO OUT terminal

Fig. 9-1.

[Set-up during adjustment]

Since the video output signal obtained from the pattern generator is used as the adjusting signal of the VTR block adjustment, it is necessary that this video output signal has to be within the specification. Connect an oscilloscope to J061 (VIDEO IN) on the PJ-19 board and make sure that the amplitude of the video SYNC signal is approx. 0.3V, that the video block is approx. 0.7V, that the burst signal is 0.3V with flat characteristics, and the signal level ratio between the burst signal and "Red" signal is 0.30 : 0.66.

The video signal (color bar) used in the VTR block adjustment is an shown in Fig. 9-2.

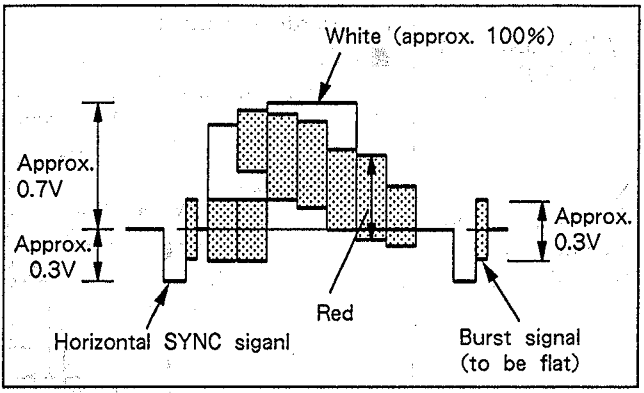
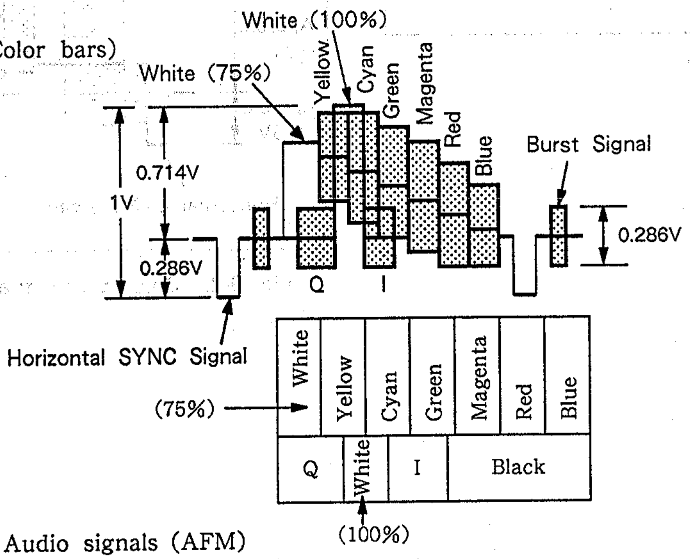

White (approx. 100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal SYNC siganl
Burst signal (to be flat)

Fig. 9-2. Color bar signal of pattern generator

[Alignment tape]

Tape	Content	Use
Tracking (WR5-1N)	1. Recording area : PCM−video 2. Recording content : CH2 : 1MHz linearity adjustment signal (CH1 : 9MHz)	Drum linearity adjustment
Video Frequency Characteristics (WR5-2N)	1. Recording area : Video 2. Recording content : RF sweep 0 to 10MHz 3. Maker : 1, 3.58, 5.5 and 7MHz 4. Recording level : $\frac{\text{5.5MHz level}}{\text{3.58MHz level}} = -5\text{dB}$	Frequency characteristics adjustment
Operation Check (WR5-3NL or WR5-3NSP) Note : PCM area is not included in WR5-3NL	1. Recording area : Video 2. Recording content : ■Video area • Video signals Color bars 10sec, Monoscope 8sec } Iterative (Color bars)  White (100%) White (75%) Yellow Cyan Green Magenta Red Blue Burst Signal 0.714V 1V 0.286V 0.286V Q I Horizontal SYNC Signal (75%) White Yellow Cyan Green Magenta Red Blue Q White I Black (100%) • Audio signals (AFM) 400Hz 60% modulation ■PCM area • Audio signals (PCM) 1kHz 10sec 20Hz 2sec 400Hz 4sec 14kHz 2sec } Iterative	Operation check

[I/O level and impedance]

Video input Pin jack
Input signal : 1 Vp-p, 75 Ω unbalance, negative SYNC
Video output Pin jack
Output signal : 1 Vp-p, 75 Ω unbalance, negative SYNC
Audio input Pin jack
Input level : −10 dBs (0 dBs=0.775 Vrms)
Input impedance : Over 47 kΩ
Audio output Pin jack
Specified output : −10 dBs with 47 kΩ load
Loading impedance : Over 10 kΩ

9-1. POWER SUPPLY CHECK

9-1-1. REG 5V Check (VI-46 Board)

Mode	Stop
Measurement Point	Positive probe : TP214 (AUDIO 5V) TP217 (VIDEO 5V) TP226 (S/S 5V) Negative probe : TP227 (GND)
Measuring Instrument	Digital voltmeter
Specified Value	5.0±0.15 Vdc

Checking method :

1) It should be 5.0±0.15 Vdc.

9-2. SYSTEM CONTROL ADJUSTMENT

9-2-1. Battery Down Adjustment (TS-80 and SK-22 Boards)

Mode	Camera mode REC
Subject	Arbitrary
Measurement Point	TP451 on TS-80 board (BATT DOWN)
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV458 on TS-80 board
Specified Value	5.77±0.01 Vdc

Connection :

1) Remove the AC pack from the battery compatment.
2) Remove CN431 on the FU-62 board and connect the regulated-DC power supply and digital voltmeter as shown in Fig. below.

Note : Be sure to perform the adjustment by connecting the camera block.

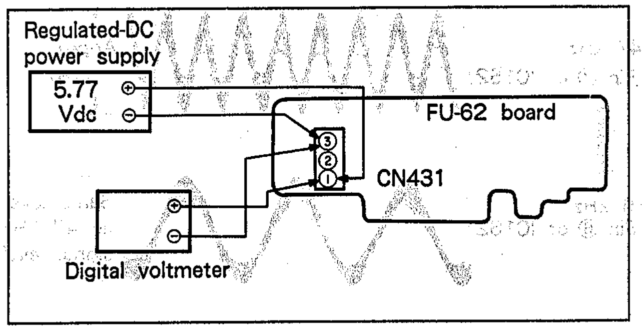


Fig. 9-3.

Adjusting method :

1) Connect TP301 (TEST) on the SK-22 board and GND with a jumper and set to test mode.
2) Adjust the output voltage of the regulated-DC power supply so that the indication of the digital voltmeter becomes 5.77±0.01 Vdc. (VTR is in REC mode)
3) Turn slowly RV458 on the TS-80 board and set the DC level of TP451 on the TS-80 board to the point where it is about to turn "L" from "H".
4) Remove the jumper.

Checking method :

Perform the following checks and if the results are not satisfied, repeat the checks again.

1) Adjust the output voltage of the regulated-DC power supply so that the indication of the digital voltmeter becomes 5.90±0.01 Vdc. (VTR is in REC mode)
2) Make sure that the ⧄ mark of the LCD does not light on and the TALLY lamp does not flicker.
3) Decrease the output voltage of the regulated-DC power supply so that the indication of the digital voltmeter becomes 5.85±0.01 Vdc.
4) Make sure that the ⧄ mark of the LCD and the TALLY lamp flicker every other second.
5) Decrease the output voltage of the regulated-DC power supply so that the indication of the digital voltmeter becomes 5.75±0.01 Vdc.
6) Make sure that the VTR is stopped and the power supply is turned OFF.

9-3. SERVO SYSTEM ADJUSTMENT

9-3-1. MOTOR POWER Voltage Adjustment (SS-83 Board)

Mode	Stop
Measurement Point	Pin ⑮ of CN307
Measuring Instrument	Digital voltmeter
Adjusting Element	RV151
Specified Value	5.30±0.05 Vdc

Adjusting method :

1) Adjust with RV151 so that it becomes 5.30±0.05 Vdc.

9-3-2. Drum Free Speed Adjustment (TS-80 Board)

Mode	REC
Signal	Arbitrary
Measurement Point	Pin ① (ADE) of CN507
Measuring Instrument	Digital voltmeter
Adjusting Element	RV451
Specified Value	1.9±0.1 Vdc

Adjusting method :

1) Adjust with RV451 so that it becomes 1.9±0.1 Vdc.

9-3-3. Capstan Free Speed Adjustment (TS-80 Board)

Mode	Playback
Signal	Arbitrary tape
Measurement Point	Pin ⑥ (CFG) of CN507
Measuring Instrument	Frequency counter
Adjusting Element	SP mode : RV452 LP mode : RV453
Specified Value	SP mode : 960±2 Hz LP mode : 480±1 Hz

Connection :

1) Connect Pin ⑯ (SL CHECK) and GND on the RP-59 board on the RP-57 board with an electrolytic capacitor. (GND is on the negative side of the capacitor.)
2) Connect Pin ③ (ATF LOCK) and GND of CN507 on the TS-80 board with a jumper.

Adjusting method :

The adjusting element of LP mode is shown in parentheses [ ].

1) During the adjustment of LP mode, connect TP302 (SP/$\overline{\text{LP}}$) and GND on the SK-12 board with a jumper.
2) Turn "VTR POWER" from OFF to ON.
3) Adjust with RV452 [RV453] so that it becomes 960±2 Hz [480±1 Hz] in the playback mode.

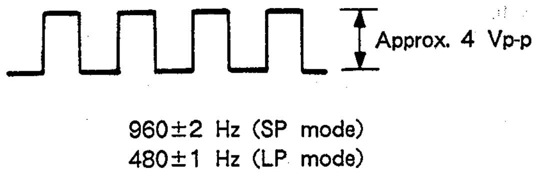

Approx. 4 Vp-p
960±2 Hz (SP mode)
480±1 Hz (LP mode)

Fig. 9-4. Capstan free speed adjustment

9-3-4. Switching Position Adjustment (TS-80 Board)

Mode	Playback
Signal	Alignment tape : For operation check (WR5-3NSP)
Measurement Point	CH1 : TP208 on VI-46 board (Pin ① of CN204 (VIDEO OUT)) CH2 : Pin ② of CN104 (RF SWP) on RP-57 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV456
Specified Value	6.5±0.3H (410±20 μsec)

Adjusting method :

1) Adjust with RV456 so that it becomes 6.5±0.3H (410±20 μsec).

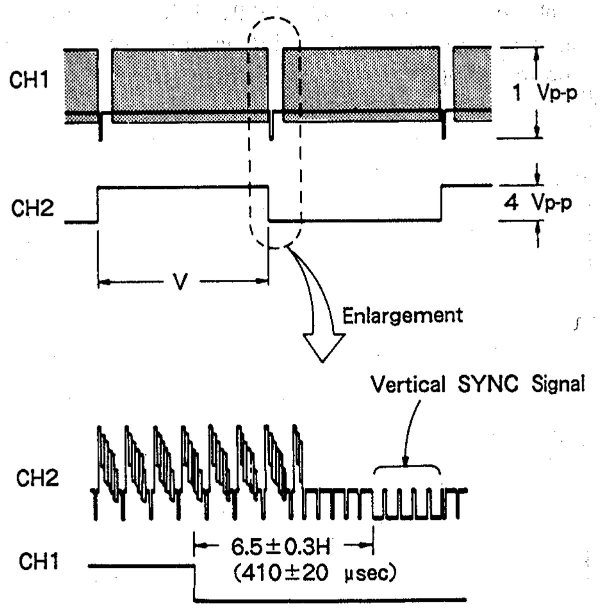

CH1
1 Vp-p
CH2
4 Vp-p
V
Enlargement
Vertical SYNC Signal
CH2
CH1
6.5±0.3H
(410±20 μsec)

Fig. 9-5. Switing position adjustment

9-3-5. ATF BPF Balance Adjustment (SS-83 Board)

Mode	Playback pause
Signal	Self-recorded tape
Measurement Point	Pins ⑦ and ⑥ of IC162
Measuring Instrument	Oscilloscope
Adjusting Element	RV152
Specified Value	Be sure that the 16 kHz signal level (Pin ⑥ of IC162) is equivalent to the 47 kHz signal level (Pin ⑦ of IC162)

Adjusting method :

1) Play back the self-recorded tape and set to playback pause mode.
2) Connect an oscilloscope to Pin ⑦ of IC162 and read the 47 kHz signal level. (Approx. 2 Vp-p)
3) Connect an oscilloscope to Pin ⑥ of IC162.
4) Adjust with RV152 so that the 16 kHz signal level becomes equivalent to the 47 kHz signal level.

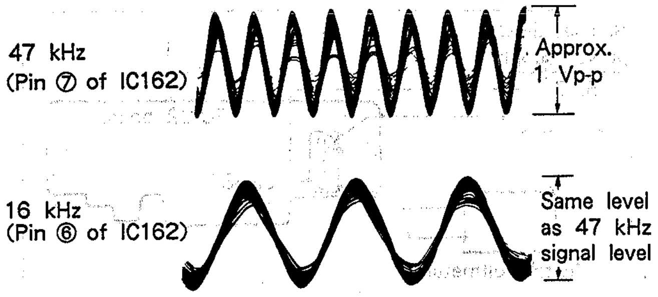

47 kHz
(Pin ⑦ of IC162)
Approx. 1 Vp-p
16 kHz
(Pin ⑥ of IC162)
Same level as 47 kHz signal level

Fig. 9-6. ATF BPF balance adjustment

9-3-6. Playback Pause Adjustment (CC-13 Board)

Mode	Playback pause
Signal	Self-recorded tape of color bar signals (SP mode)
Measurement Point	CH1 : Pin ② of CN104 on RP-57 board (RF SWP) CH2 : Pin ① of CN104 on RP-57 board (RF OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV901 (FRAME ADJ)
Specified Value	Minimum noise on monitor screen

Adjusting method :

1) Select the playback mode and set to the playback pause mode after the playback picture stabilizes.
2) Confirm that the RF OUT waveform (CH2 waveform).
3) Rotate the FRAME ADJ knob (RV901 on CC-13 board) and repeat steps 1) and 2) until the peaks of the RF OUT waveform (CH2 waveform) are near the center of the H period and L period of the RF SWP waveform (CH1 waveform), and so that the levels at the entrance and exit of fields A and B of the RF OUT waveform are equivalent and at maximum level.
4) Repeat steps 1) and 2) at least five times and confirm that no noise appears on the monitor screen.

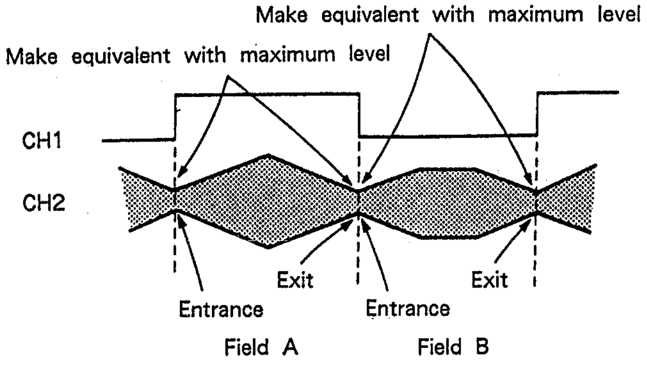

Make equivalent with maximum level
Make equivalent with maximum level
CH1
CH2
Exit
Exit
Entrance
Entrance
Field A
Field B

Fig. 9-7. Playback pause adjustment

9-3-7. Slow Tracking Adjustment (TS-80 board)

Mode	1/30 slow playback
Signal	Self-recorded tape of color bar signals (SP mode)
Measurement Point	CH1 : Pin ② of CN104 on RP-57 board (RF SWP) CH2 : Pin ① of CN104on RP-57 board (RF OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV455 (SP mode)
Specified Value	Minimum noise on monitor screen

Preparations :
1) Perform "Playback Pause Adjustment".

Adjusting method :
1) Select the playback mode and change to the playback pause mode after the playback picture stabilizes.
2) Hold down the FRAME button to select the 1/30 slow playback mode.
3) Adjust RV455 until the peaks of the RF OUT waveform (CH2 waveform) are near the center of the H period and L period of the RF SWP waveform (CH1 waveform), and so that the levels at the entrance and exit of fields A and B of the RF OUT waveform are equivalent and at maximum level. (Refer to Fig. 9-7.)
Also confirm that there is minimum noise on the monitor screen.

9-3-8. Frame Feed Adjustment (TS-80 Board)

Mode	Frame feed (FRAME)
Signal	Self-recorded tape of color bar signals
Measurement Point	CH1 : Pin ② of CN104 on RP-57 board (RF SWP) CH2 : Pin ① of CN104 on RP-57 board (RF OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV459
Specified Value	Minimum noise on monitor screen

Preparations :
1) Perform "Playback Pause Adjustment".

Adjusting method :
1) Select the playback mode and change to the playback pause mode after the playback picture stabilizes.
2) Perform frame feed once and confirm that the peaks of the CH2 waveform are near the center of the H period and L period of the CH1 waveform, and that the output at the entrance and exit of fields A and B is equivalent and at maximum level. (Refer to Fig. 9-8.)
Also check the amount of noise on the monitor screen.
3) Perform further frame feeding and confirm that the entrance and exit output of the RF waveform of CH2 is equivalent and maximum for each frame feed.
Also check the amount of noise on the monitor screen.
4) Rotate RV459 and set to the position which provides minimum noise on the monitor screen when steps 1) through 3) are repeated.
(At this time, rotate RV459 fully in the counterclockwise direction and repeat adjustment while gradually returning in the clockwise direction. As there is no single minimum noise position, set RV459 to the first minimum noise point.)

9-3-9. JOG VD Adjustment (CC-13 Board)

Mode	Playback pause
Signal	Self-recorded tape with cross hatch signals, etc.
Measurement Point	Confirm on monitor TV screen
Measuring Instrument	
Adjusting Element	RV902 (STILL ADJ)
Specified Value	Minimum vertical jitter in the center of the screen.

Adjusting method :

1) Select the playback mode and change to the playback pause mode after the playback picture stabilizes.
2) Adjust the STILL ADJ knob (RV902 on CC-13 board) for minimum vertical jitter in the center of the screen.

9-4. VIDEO BLOCK ADJUSTMENT

The adjustment of the video system should in principle be followed the undermentioned adjustment procedure.

The color video signal supplied from the pattern generator is utilized as the video input signal of the video system adjustment in recording mode. Make sure to check that the SYNC signal and color burst signal are matched with those in the set-up of during the adjustment of as shown in Fig. 9-2.

[Adjusting procedure]

1) Playback frequency characteristics adjustment
2) Flying erase check
3) Crystal oscillator f0 adjustment
4) Y/C separation adjustment
5) Y comb type filter adjustment
6) SYNC AGC adjustment
7) VIDEO OUT level adjustment
8) PB Y level adjustment
9) Y FM carrier frequency adjustment
10) Y FM deviation adjustment
11) AC clip adjustment
12) 378fH VCO adjustment
13) Chroma emphasis f0 adjustment
14) Carrier balance adjustment
15) REC Y recording current adjustment
16) REC C recording current adjustment
17) REC AFM recording current adjustment
18) REC ATF recording level check
19) REC PCM recording current adjustment

9-4-1. Playback Frequency Characteristics Adjustment (RP-59/RP-57 Boards)

1. CH1 and CH2 adjustment

The adjusting element of CH2 is shown in parentheses [ ].

Mode	Playback
Signal	Alignment tape : For frequency characteristics adjustment (WR5-2N)
Measurement Point	Pin ③ [Pin ④] of CN104 on RP-57 board External trigger : Pin ② of CN104 Trigger slope : + [−]
Measuring Instrument	Oscilloscope
Adjusting Element	RV003 [RV004] on RP-59 board
Specified Value	3.58 MHz level : 5.5 MHz level =4 : 3

Adjusting method :

1) Adjust RV003 [RV004] on the RP-57 board so that the ratio of 3.58 MHz level to 5.5 MHz level is 4 : 3 [4 : 3].

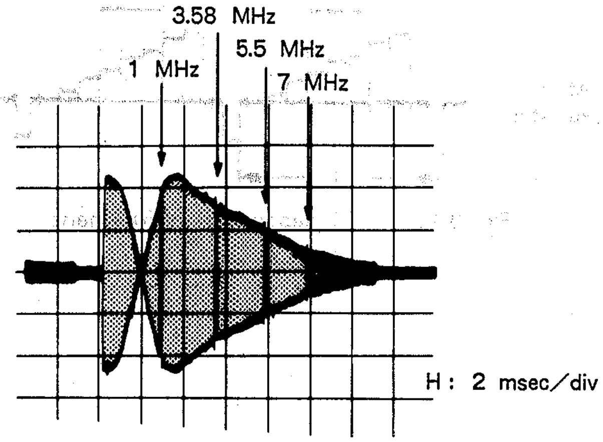


Fig. 9-8. Playback freguency characteristics adjustment

2. CH1' adjustment

Mode	Playback pause
Signal	Alignment tape : For frequency characteristics adjustment (WR5-2N)
Measurement Point	Pin ⑤ of CN104 on RP-57 board External trigger : Pin ② of CN104 on RP-57 board Trigger slope : −
Measuring Instrument	Oscilloscope
Adjusting Element	RV101 on RP-57 board
Specified Value	3.58 MHz level : 5.5 MHz level =4 : 3

Adjusting method :

1) Adjust RV101 on the RP-57 board so that the ratio of 3.58 MHz level to 5.5 MHz level is 4 : 3.

9-4-2. Flying Erase Check (RP-57 Board)

Mode	REC
Signal	Arbitrary
Measurement Point	TP102 (FE CHECK)
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency : Over 7.5 MHz Voltage : Over 7.5 Vp-p

Note : Be sure to use MP type tape (Pin ⑤ of W202 should be "L").

Checking method :

1) Make sure that the oscillation frequency is over 7.5 MHz and the oscillation voltage is over 7.5 Vp-p.

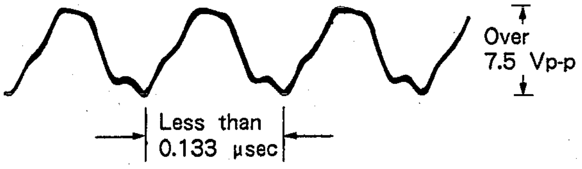


Fig. 9-9. Flying erase check

9-4-3. Crystal Oscillator fo Adjustment (VC-10/VI-46 Boards)

Mode	Playback
Signal	Alignment tape : For operation check (WR5-3NSP)
Measurement Point	TP210 on VI-46 board (Pin (55) on VC-10 board)
Measuring Instrument	Frequency counter
Adjusting Element	CV001 on VC-10 board
Specified Value	3579545±50 Hz

Note : Connect the frequency counter through a buffer of high impedance (approx. 10 MΩ) and low capacitance (less than 10 pF).

Adjusting method :

1) Adjust with CV001 on the VC-10 board so that it becomes 3579545±50 Hz.

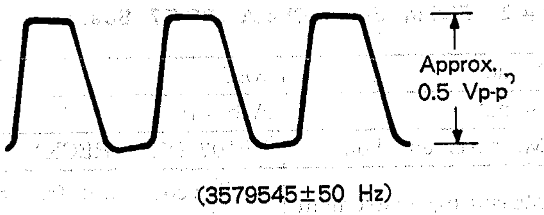


Fig. 9-10. Crystal osillator fo adjustment

9-4-4. Y/C Separation Adjustment (VD-10/VI-46 Boards)

Mode	E-E
Signal	Color bar
Measurement Point	TP211 on VI-46 board (Pin ㉕ on VD-10 board)
Measuring Instrument	Oscilloscope
Adjusting Element	RV002 on VD-10 board and LV201 on VI-46 board
Specified Value	Minimum residual chroma component

Adjusting method :

1) Adjust with RV002 on the VD-10 board and LV201 on the VI-46 board alternately so that the residual chroma component becomes minimum.

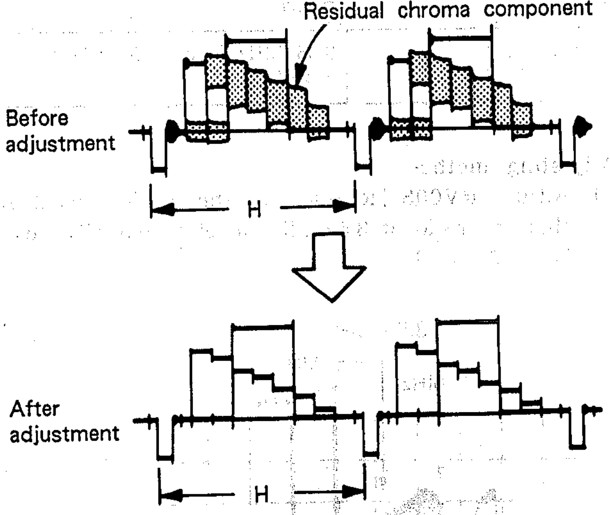


Fig. 9-11. Y/C separation adjustment

9-4-5. Y Comb Type Filter Adjustment (VI-46 Board)

Mode	E-E
Signal	Color bar
Measurement Point	TP213 on VI-46 board (Pin ⑫ on VD-10 board)
Measuring Instrument	Oscilloscope
Adjusting Element	RV204
Specified Value	The amplitude between the white (100%) and the H SYNC is 50±25 mVp-p.

Note : Be sure to connect a 22 kΩ of resistor in series between TP213 and 10 : 1 probe.

Adjusting method :

1) Adjust with RV204 on the VI-46 board so that the amplitude between the white (100%) and H SYNC becomes 50±25 mVp-p.

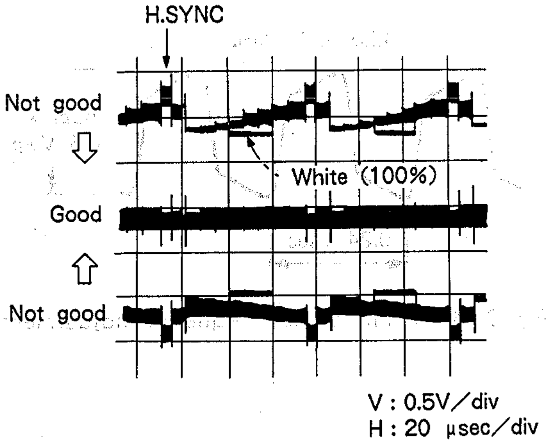


Fig. 9-12. Y comb type filter adjustment

9-4-6. SYNC AGC Adjustment (VY-12/VI-46 Boards)

Mode	E-E
Signal	Color bar
Measurement Point	TP212 on VI-46 board (Pin ② on VY-12 board)
Measuring Instrument	Oscilloscope
Adjusting Element	RV002 on VY-12 board
Specified Value	0.50±0.01 Vp-p

Adjusting method :

1) Adjust with RV002 on VY-12 board so that it becomes 0.50±0.01 Vp-p.

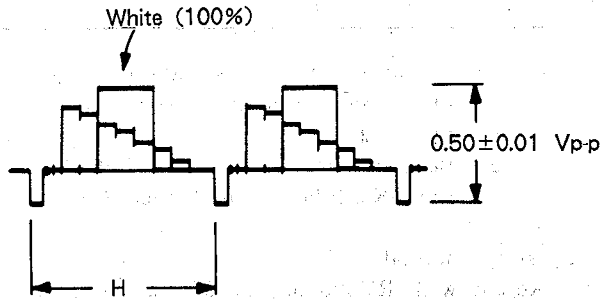


Fig. 9-13. SYNC AGC adjustment

9-4-7. VIDEO OUT Level Adjustment (VY-12/VI-46 Boards)

Mode	E-E
Signal	Color bar
Measurement Point	TP208 on VI-46 board (Pin ① of CN204 (VIDEO OUT))
Measuring Instrument	Oscilloscope
Adjusting Element	RV001 on VY-12 board
Specified Value	$1.00^{+0.025}_{-0.05}$ Vp-p

Note : Be sure that the VIDEO OUT terminal (J381 on the SC-9 board) is terminated by 75 Ω.

Adjusting method :

1) Adjust with RV001 on the VY-12 board so that it becomes $1.00^{+0.025}_{-0.05}$ Vp-p.

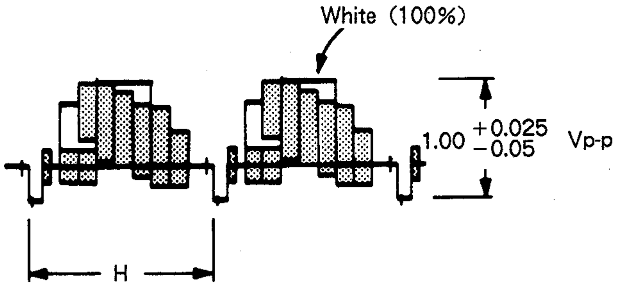


Fig. 9-14. VIDEO OUT level adjustment

9-4-8. PB Y Level Adjustment (VY-12/VI-46 Boards)

Mode	Playback
Signal	Alignment tape : For operation check (WR5-3NSP) Color bar section
Measurement Point	TP208 on VI-46 board (Pin ① of CN204 (VIDEO OUT))
Measuring Instrument	Oscilloscope
Adjusting Element	RV006 on VY-12 board
Specified Value	$1.00\ ^{+0.025}_{-0.05}$ Vp-p

Note : 1) Be sure that the VIDEO OUT terminal (J381 on the SC-9 board) is terminated by 75 Ω.
2) Be sure that the EDIT switch (S310 on the SK-22 board) is turned OFF.

Adjusting method :
1) Adjust with RV006 on the VY-12 board so that it becomes $1.00\ ^{+0.025}_{-0.05}$ Vp-p.

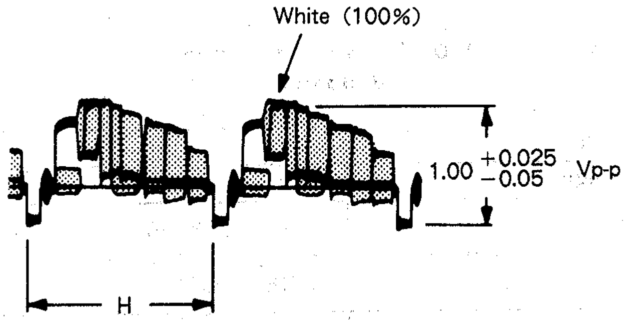


Fig. 9-15. PB Y level adjustment

9-4-9. Y FM Carrier Frequency Adjustment (VY-12/VI-46 Boards)

Mode	E-E
Signal	Non-signal
Measurement Point	TP229 on VI-46 board (Pin ㉖ on VY-12 board (REC Y RF))
Measuring Instrument	Frequency counter
Adjusting Element	RV003 on VY-12 board
Specified Value	4.20±0.04 MHz

Adjusting method :
1) Set RV004 (AC CLIP) on the VY-12 board to the mechanical center. (The slide pin of RV004 is approx. 2.7 Vdc.)
2) Adjust with RV003 on the VY-12 board so that it becomes 4.20±0.04 MHz.
3) Be sure to perform the "Deviation adjustment" and "AC clip adjustment".

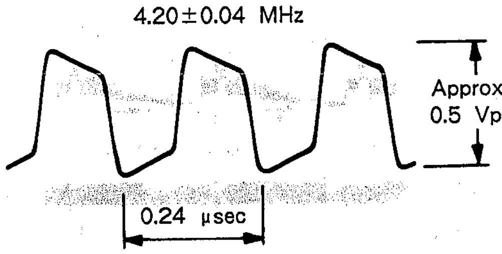


Fig. 9-16. Y FM carrier frequency adjustment

9-4-10. Y FM Deviation Adjustment (VY-12/VI-46 Boards)

Mode	REC and playback
Signal	Color bar
Measurement Point	TP208 on VI-46 board (Pin ① of CN204 (VIDEO OUT))
Measuring Instrument	Oscilloscope
Adjusting Element	RV005 on VY-12 board
Specified Value	Playback level : $1.00 {}^{+0.025}_{-0.05}$ Vp-p

Note : 1) Be sure that the "VIDEO OUT level adjustment", "PB Y level adjustment" and "Y FM carrier frequency adjustment" have been completed.
2) Be sure that the VIDEO OUT terminal (J381 on the SC-9 board) is terminated by 75 Ω.
3) Be sure the EDIT switch (S310 on the SK-22 board) is turned OFF.

Adjusting method :
1) Record the color bar signal.
2) Play back the recorded section.
3) Be sure to check the playback output level.
Specified value : $1.00 {}^{+0.025}_{-0.05}$ Vp-p
4) When the specified value is not satisfied, repeat 1) through 3) after turning RV005 on the VY-12 board in the following manner.

	Turning direction of RV005
When larger than the specified value	Clockwise (↻)
When smaller than the specified value	Counterclockwise (↺)

Table. 9-1.

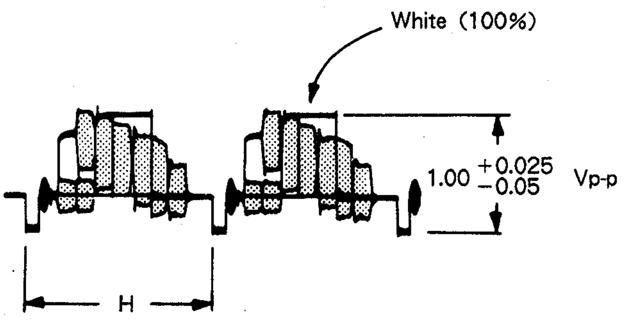


Fig. 9-17. Y FM deviation adjustment

9-4-11. AC Clip Adjustment (VY-12/VI-46 Boards)

Mode	E-E
Signal	Color bar
Measurement Point	TP204 on VI-46 board (Pin ㉜ on VY-12 board)
Measuring Instrument	Oscilloscope
Adjusting Element	RV004 on VY-12 board
Specified Value	250±10%

Adjusting method :
1) Adjust with RV004 on the VY-12 board so that the peak of the white 100% becomes 250±10%.

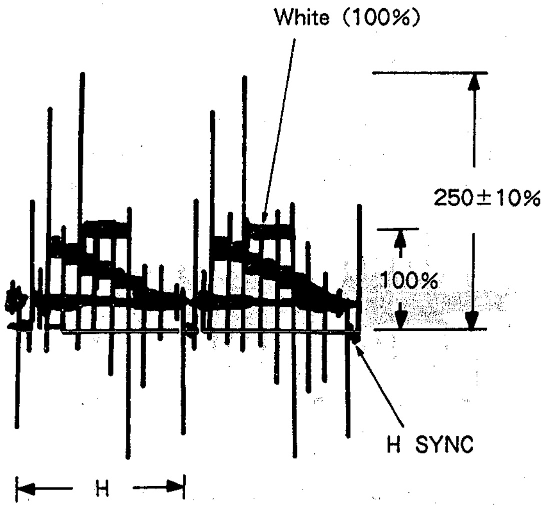


Fig. 9-18. AC clip adjustment

9-4-12. 378fH VCO Adjustment (VC-10/VI-46 Boards)

Mode	E-E
Signal	Color bar
Measurement Point	TP218 on VI-46 board (Pin ㊼ on VC-10 board)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV001 on VC-10 board
Specified Value	3.0±0.1 Vdc

Adjusting method :
1) Adjust with RV001 on the VC-10 board so that it becomes 3.0±0.1 Vdc.

9-4-13. Chroma Emphasis fo Adjustment (VI-46 Board)

Mode	E-E
Signal	Color bar
Measurement Point	TP215 on VI-46 board (Pin ㊿ on VC-12 board)
Measuring Instrument	Oscilloscope
Adjusting Element	FL201 on VI-46 board
Specified Value	Minimize fo component

Connection :

1) Make jumper wire connections at the two following locations on the VC-10 board
   - Pin㊽ (ACC) —— Pin㉘ (REG 5V 1)
   - Pin㊽ (ACC) —— Pin㉒ (GND 1)

Adjusting method :

1) Adjust with FL201 so that amplitude of the flat section of the chroma signal becomes minimum.

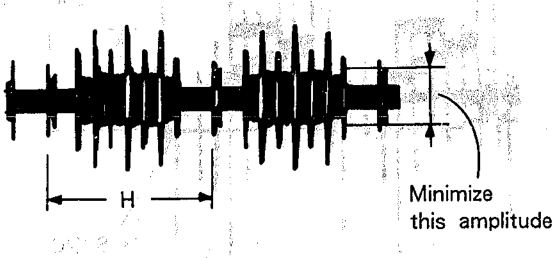


Fig. 9-19. Chroma emphasis fo adjustment

9-4-14. Carrier Balance Adjustment (VC-10/VI-46 Boards)

Mode	E-E
Signal	Color bar
Measurement Point	Pin (64) on VC-10 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV002 on VC-10 board
Specified Value	Minimize 4.32 MHz signal component

Adjusting method :

1) Adjust with RV002 on the VC-10 board so that the 4.32 MHz signal component becomes minimum.

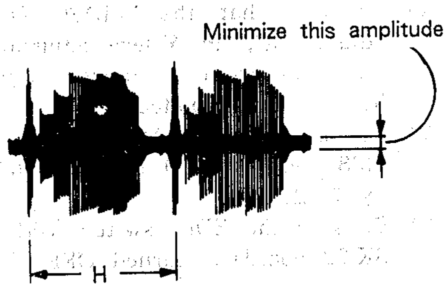


Fig. 9-20. Carrier balance adjustment

9-4-15. REC Y Recording Current Adjustment (RP-59/RP-57 Boards)

Mode	REC
Signal	Non-signal
Measurement Point	Pin ① of CN103 on RP-57 board (CH1 CHECK)
Measuring Instrument	Oscilloscope
Adjusting Element	RV001 (REC VI) on RP-59 board
Specified Value	220 mVp-p

Note : Be sure to always perform the adjustment of the respective recording currents of the REC C, REC AFM after the REC Y recording current adjustment has been completed.

Adjusting method :

1) Adjust with RV001 on the RP-59 board so that it becomes 220 mVp-p.

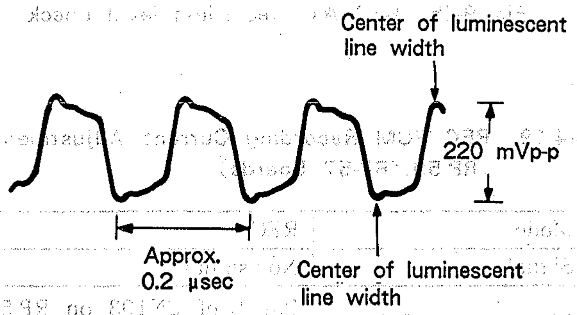

Center of luminescent line width
220 mVp-p
Approx. 0.2 µsec
Center of luminescent line width

Fig. 9-21. REC Y recording current adjustment

9-4-16. REC C Recording Current Adjustment (RP-57 Board)

Mode	REC
Signal	Color bar
Measurement Point	Pin ① of CN103 (CH1 CHECK)
Measuring Instrument	Oscilloscope
Adjusting Element	RV102
Specified Value	44±5 mVp-p

Note : 1) Be sure to perform REC AFM recording current adjustment after REC C recording current adjustment.

2) Use MP-type tape. (Pin ⑤ of W202 must be "L".)

Connections :

1) In order to eliminate other recording signals and to stop oscillation of flying erase, connect the following four places by jumper wire.
   - Pin ⑥ of W202 (REC Y RF) —— Pin ① of W202 (R/P 5V)
   - Pin ⑦ of W202 (REC ATF RF) —— GND (TP101)
   - Pin ⑧ of W202 (REC AFM RF) —— GND (TP101)
   - Base of Q130 —— Emitter of Q130

Adjusting method :

1) Adjust with RV102 to 44±5 mVp-p.

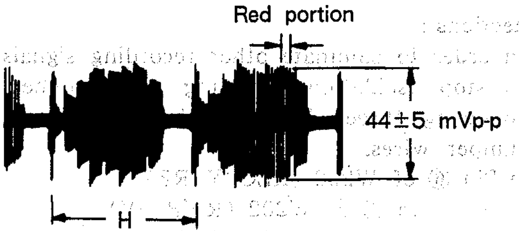


Fig. 9-22. REC C recording current adjustment

9-4-17. REC AFM Recording Current Adjustment (AU-45 Board)

Mode	REC
Signal	Non-signal
Measurement Point	Pin ① of CN103 on RP-57 board (CH1 CHECK)
Measuring Instrument	Oscilloscope
Adjusting Element	RV401 on AU-45 board
Specified Value	10±1 mVp-p

Note : 1) Use MP-type tape. (Pin ⑤ of W202 on RP-57 board must be "L".)

2) When the signal level of Pin ① of CN103 is too low to read easily, make direct connection using a 100 Ω resistor as shown below rather than using the 10 : 1 probe.

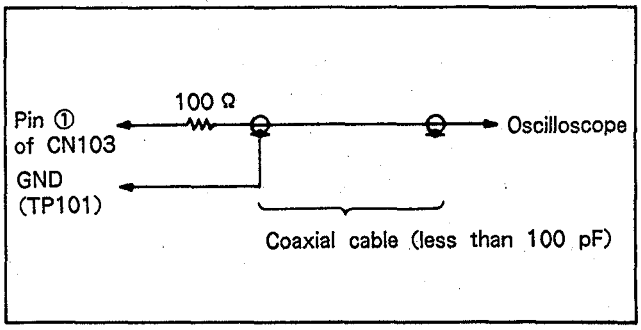


Fig. 9-23.

Connections :

1) In order to eliminate other recording signals and to stop oscillation of flying erase, connect the following three places on the RP-57 board by jumper wires.
   - Pin ⑥ of W202 (REC Y RF) —— Pin ① of W202 (R/P 5V)
   - Pin ⑦ of W202 (REC ATF RF) —— GND (TP101)
   - Base of Q130 —— Emitter of Q130

Adjusting method :

1) Adjust with RV401 on the AU-45 board to 10±1 mVp-p.

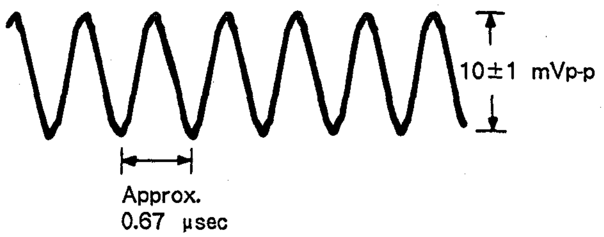


Fig. 9-24. REC AFM recording current adjustment

9-4-18. REC ATF Recording Level Check (VI-46 Board)

Mode	E-E
Signal	Non-signal
Measurement Point	Pin ⑬ of W205 (REC ATF PILOT)
Measuring Instrument	Oscilloscope
Specified Value	490±50 mVp-p

Checking method :

1) Check that the REC ATF PILOT signal level is 490±50 mVp-p.

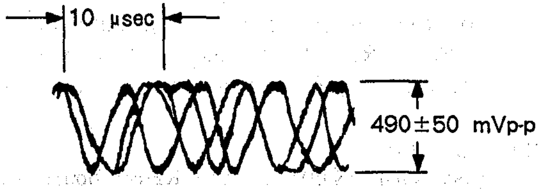


Fig. 9-25. REC ATF recording level check

9-4-19. REC PCM Recording Current Adjustment (RP-59/RP-57 Boards)

Mode	REC
Signal	Non-signal
Measurement Point	Pin ① of CN103 on RP-57 board (CH1 CHECK)
Measuring Instrument	Oscilloscope
Adjusting Element	RV002 on RP-59 board
Specified Value	220 mVp-p

Connections :

1) In order to eliminate other recorded signals, connect TP103 (PCM ONLY) on the RP-57 board with GND through a 0.01 μF capacitor.

Adjusting method :

1) Adjust with RV002 on the RP-59 board so that it becomes 220 mVp-p.

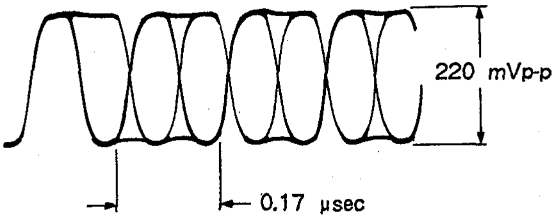


Fig. 9-26. REC PCM recording current adjustment

9-5. AUDIO SYSTEM ADJUSTMENT

- Perform adjustment using color bar signal for video signal input.

[Connection of instruments for audio measurement]
In addition to the video system measurement instruments , the audio system measurement instruments are connected as shown in the Fig. below, and adjustment is made in the VCR mode.

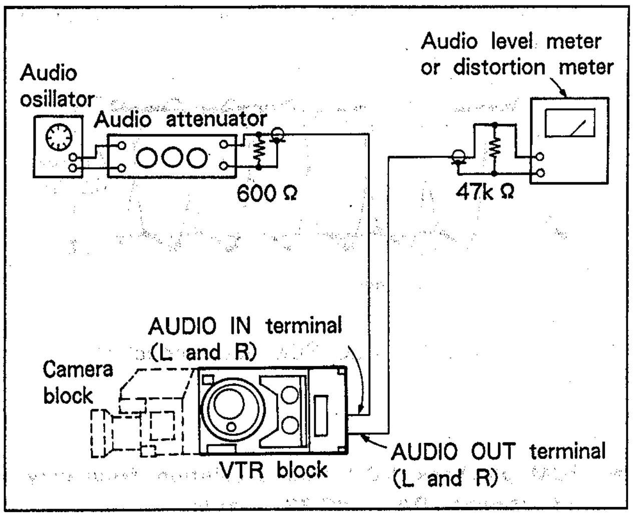

Audio oscillator
Audio attenuator
600 Ω
Audio level meter or distortion meter
47k Ω
AUDIO IN terminal (L and R)
Camera block
VTR block
AUDIO OUT terminal (L and R)

Fig. 9-27.

9-5-1. PCM Audio System Adjustment

Unless indicated otherwise, the VTR switches and controls are set to the following positions during adjustment.

- Audio monitor (PCM/MIX/STD) switch······PCM
- REC LEVEL control······Position at which AUDIO OUT terminal level becomes −10 dBs when 400 Hz, −10 dBs signal is input to AUDIO IN terminal.

Note : 1) The adjusting element for the R channel is shown in [ ].
2) Refer to the following diagram of measurement points when performing "PCM Master Clock Adjustment", "PCM Playback VCO Free Oscillation Frequency Adjustment", and "PCM Offset Adjustment".

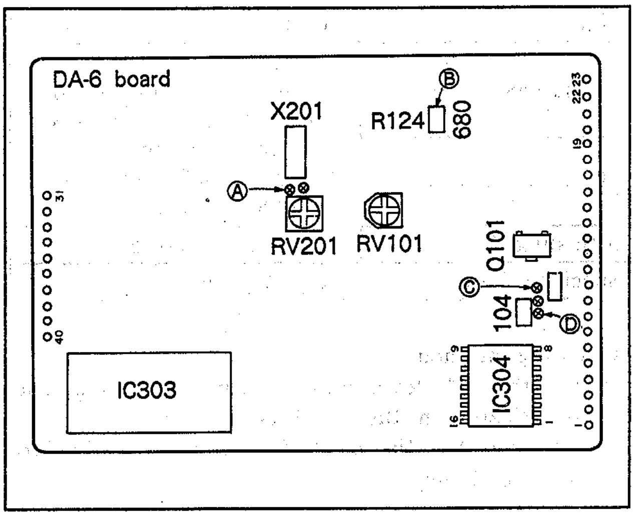

DA-6 board
X201
R124
680
Ⓐ
Ⓑ
RV201
RV101
Q101
Ⓒ
Ⓓ
104
IC303
IC304
31
40
223
190
16
9
8
1

Fig. 9-28.

[Adjusting procedure]
1) PCM DC - DC convertor output voltage adjustment
2) PCM master clock oscillation frequency adjustment
3) REC PCM level check
4) PCM playback VCO free oscillation frequency adjustment
5) PCM playback level adjustment
6) E-E output level check
7) PCM offset adjustment
8) PCM recording level adjustment
9) Overall frequency characteristics check
10) Overall distortion check
11) Overall noise level check
12) Level meter adjustment

1. PCM DC/DC converter output voltage adjustment (CC-13 board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ① of CN902
Measuring Instrument	Digital voltmeter
Adjusting Element	RV904
Specified Value	8.6±0.1 Vdc

Adjusting method :

1) Adjust RV904 so that 8.6±0.1 Vdc is obtained.

2. PCM master clock oscillation frequency adjustment (DA-6/PC-32 boards)

Mode	REC
Signal	No-signal
Measurement Point	Oscilloscope : Through hole Ⓐ of DA-6 board (Refer to Fig. 7-28)
Measuring Instrument	Frequency counter : Pin ① of IC304 on DA-6 board
Adjusting Element	RV201 on DA-6 board
Specified Value	6.3±0.2 msec

Adjusting method :

1) Set the "L" level pulse width to 6.3±0.2 msec by RV201 on the DA-6 board.
2) Confirm that the clock frequency is 11.58 MHz and is stable.

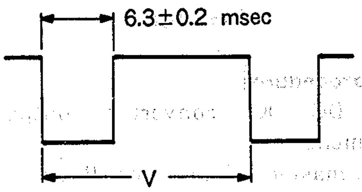


Fig. 9-29. PCM master clock oscillation frequency adjustment

3. REC PCM level check (DA-6/PC-32 boards)

Mode	REC
Signal	No-signal
Measurement Point	Pin ⑲ on DA-6 board
Measuring Instrument	Oscilloscope
Specified Value	Approx. 0.5 Vp-p

Checking method :

1) Confirm that the REC PCM level is approx. 0.5 Vp-p.

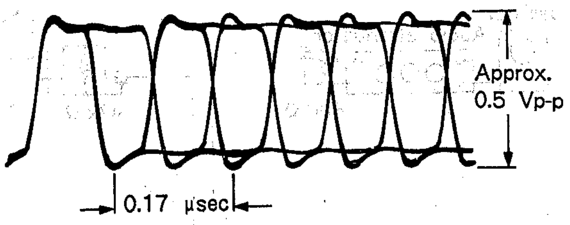


Fig. 9-30. REC PCM level check

4. PCM playback VCO free oscillation frequency adjustment (DA-6/PC-32 boards)

Mode	Playback
Signal	Any tape
Measurement Point	R124 (Ⓑ in Fig. 7-28) on DA-6 board
Measuring Instrument	Frequency counter
Adjusting Element	RV101 on DA-6 board
Specified Value	11.58±0.05 MHz

Adjusting method :

1) Adjust to 11.58±0.05 MHz using RV101 on the DA-6 board.

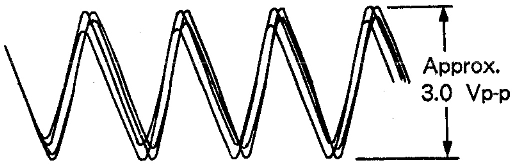


Fig. 9-31. PCM playback VCO free oscillation frequency adjustment

5. PCM playback level adjustment (DA-6/PC-32 boards)

Mode	Playback
Signal	Alignment tape : For operation check (WR5-3NSP) Monoscope signal section
Measurement Point	AUDIO OUT terminal L [R]
Measuring Instrument	Audio level meter
Adjusting Element	RV405 on DA-6 board
Specified Value	−10.0±0.1 dBs

Adjusting method :

1) Adjust to −10.0±0.1 dBs by RV405.

Note : When there is a difference in the levels of the L and R channels, adjust to the center value.

6. E-E output level check

Mode	E-E
Signal	400Hz, −10 dBs : AUDIO IN terminal L [R]
Measurement Point	AUDIO OUT terminal L [R]
Measuring Instrument	Audio level meter
Specified Value	0±1.5 dBs

Checking method :

1) Rotate the REC LEVEL knob fully in the clockwise direction (○).
2) Confirm that the level at AUDIO OUT terminal L [R] is 0±1.5 dBs.

7. PCM offset adjustment (DA-6/PC-32 boards)

Mode	Recording
Signal	No-signal
Measurement Point	CH1 : Through hole Ⓒ (ADDA) of DA-6 board CH2 : Through hole Ⓓ (WCK) of DA-6 board • Refer to Fig. 9-28
Measuring Instrument	Oscilloscope
Adjusting Element	RV401 [RV402] on DA-6 board
Specified Value	Even brightness of upper and lower luminance lines

Note : Perform adjustment for channel L and channel R alternately as they affect each other.

Adjusting method :

1) Set the REC LEVEL knob to its lowest position.
2) Make the brightness of upper and lower luminance lines the same by RV401 [RV402].

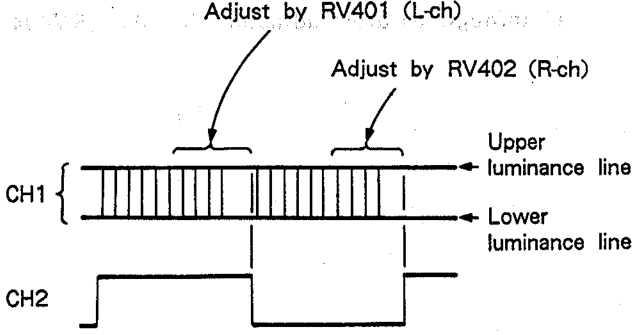


Fig. 9-32. PCM offset adjustment

8. PCM recording level adjustment (DA-6/PC-32 boards)

Mode	Self-recording and playback
Signal	400Hz, −10 dBs : AUDIO IN terminal L [R]
Measurement Point	AUDIO OUT terminal L [R]
Measuring Instrument	Audio level meter
Adjusting Element	RV403 [RV404] on DA-6 board
Specified Value	−10±0.5 dBs

Note : Make sure that "PCM Playback Level Adjustment" has been completed.

Adjusting method :
1) Set to the E-E mode.
2) Use the REC LEVEL knob to adjust the output level at AUDIO OUT terminal L [R] to −10 dBs.
3) Record the signal.
4) Playback the recorded section.
5) Confirm that the output level at AUDIO OUT terminal L [R] is −10±0.5 dBs.
6) If the specified value is not satisfied, repeat steps 1) through 5) after adjusting RV403 [RV404].

9. Overall frequency characteristics check

Mode	Self-recording and playback
Signal	Ⓐ 400Hz, −20 dBs Ⓑ 20Hz, −20 dBs Ⓒ 14 kHz, −20 dBs : AUDIO IN terminal L [R]
Measurement Point	AUDIO OUT terminal L [R]
Measuring Instrument	Audio level meter
Specified Value	20Hz playback output level is 0^{+2}_{-3} dB and 14 kHz playback level is 0^{+2}_{-3} dB when the 400Hz playback output level is 0 dB

Checking method :
1) Adjust the REC LEVEL knob so that the output level at AUDIO OUT terminal L [R] is −20 dBs.
2) Record signals Ⓐ through Ⓒ in order.
3) Playback the recorded sections.
4) Confirm that the 20 Hz playback output level is 0^{+2}_{-3} dB and 14 kHz playback level is 0^{+2}_{-3} dB when the 400 Hz playback output level is 0 dB.

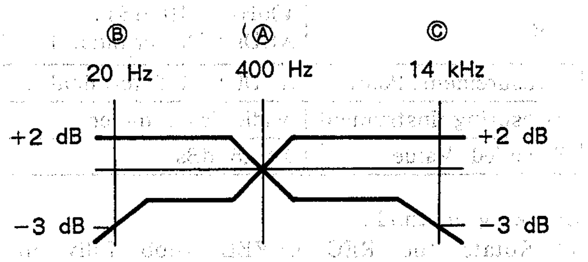


Fig. 9-33. Overall frequency characteristics check

10. Overall distortion check

Mode	Self-recording and playback
Signal	1 kHz, −10 dBs : AUDIO IN terminal L [R]
Measurement Point	AUDIO OUT terminal L [R]
Measuring Instrument	Distortion meter
Specified Value	Less than 0.35% *1

Checking method :
1) Adjust the REC LEVEL knob so that the output level of AUDIO OUT terminal L [R] is −10 dBs.
2) Record the signal.
3) Playback the recorded section.
4) Make sure that the distortion is less than 0.35%. *1

*1 Value when 30 kHz LPF is used.

11. Overall noise level check

Mode	Self-recording and playback
Signal	No-signal • Insert the shorting plug to AUDIO IN terminal L or R
Measurement Point	AUDIO OUT terminal L [R]
Measuring Instrument	Audio level meter
Specified Value	Less than −85 dBs *2

Checking method :

1) Record the signal.
2) Playback the recorded section.
3) Make sure that the noise level is less than −85 dBs.

*2 Value when IHF-A hearing correction filter is used

12. Level meter adjustment (PC-32 board)

Mode	E-E
Signal	AUDIO IN terminal L [R] : 400Hz, −10 dBs
Measurement Point	AUDIO OUT terminal L [R]
Measuring Instrument	Audio level meter
Adjusting Element	RV002 [RV003]
Specified Value	Level meter on video camera recorder indicates −10 dB.

Adjusting method :

1) Adjust the REC LEVEL knob so that the signal level of AUDIO OUT terminal L [R] is −10 dBs.
2) Adjust RV002 [RV003] so that level meter L [R] of the camera video recorder indicates −10dB.

9-5-2. AFM Audio System Check

Note : 1) The audio signal is input simultaneously to the AUDIO IN terminals L and R.
2) Set the AUDIO MONITOR switch to the "STD" position for checking.

1. AFM carrier frequency check (AU-45 board)

Mode	REC (SP mode)
Signal	Non-signal
Measurement Point	Pin ② of W401 (REC AFM RF)
Measuring Instrument	Frequency counter
Specified Value	1.500±0.002 MHz

Checking method :

1) Turn OFF the audio oscillation output.
2) Confirm that the AFM carrier frequency is 1.500 ±0.002 MHz.

2. AFM deviation check (AU-45 board)

Mode	Playback
Signal	Alignment tape : For operation check (WR5-3NSP)
Measurement Point	AUDIO LINE OUT (L) or AUDIO LINE OUT (R)
Measuring Instrument	Audio level meter
Specified Value	−10±1.5 dBs

Checking method :

1) Confirm that the audio line output level is −10 ±1.5 dBs.

3. E-E output level check

Mode	E-E
Signal	400 Hz, −10 dBs
Measurement Point	AUDIO LINE OUT (L) or AUDIO LINE OUT (R)
Measuring Instrument	Audio level meter
Specified Value	−10±2 dBs

Checking method :

1) Be sure the audio output level is −10±2 dBs.

4. Overall level characteristics check

Mode	Self-recording and playback
Signal	400 Hz, −10 dBs
Measurement Point	AUDIO LINE OUT (L) or AUDIO LINE OUT (R)
Measuring Instrument	Audio level meter
Specified Value	−10±1.5 dBs

Checking method :

1) Record the signal.
2) Play back the recorded section.
3) Be sure the audio output level is −10±1.5 dBs.

5. Overall frequency characteristics check

Mode	Self-recording and playback
Signal	Ⓐ 400 Hz, −20 dBs Ⓑ 30 Hz, −20 dBs Ⓒ 14 kHz, −20 dBs
Measurement Point	AUDIO LINE OUT (L) or AUDIO LINE OUT (R)
Measuring Instrument	Audio level meter
Specified Value	When the 400 Hz playback output level is specified as 0 dB, the playback output levels of 30 Hz and 14 kHz become both 0±3 dB.

Checking method :

1) Record the signals of Ⓐ to Ⓒ in sequence.
2) Play back the recorded section.
3) Be sure that when the 400 Hz playback output level is specified as 0 dB, the playback output levels of 30 Hz and 14 kHz becomes both 0±3 dB.

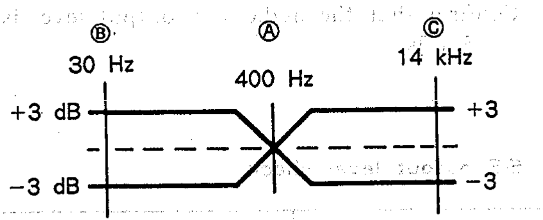


Fig. 9-34. AFM overall frequency characteristics

6. Overall distortion check

Mode	Self-recording and playback
Signal	400 Hz, −10 dBs
Measurement Point	AUDIO LINE OUT (L) or AUDIO LINE OUT (R)
Measuring Instrument	Distortion meter
Specified Value	Less than 0.5% *1

Checking method :

1) Record the signal.
2) Play back the recorded section.
3) Be sure the distortion is less than 0.5% *1.

*1 Value when 30 kHz LPF used.

7. Overall noise level check

Mode	Self-recording and playback
Signal	Non-signal • Insert the shoting plug to AUDIO IN terminal L or R
Measurement Point	AUDIO LINE OUT (L) or AUDIO LINE OUT (R)
Measuring Instrument	Audio level meter
Specified Value	Less than −66 dBs *2

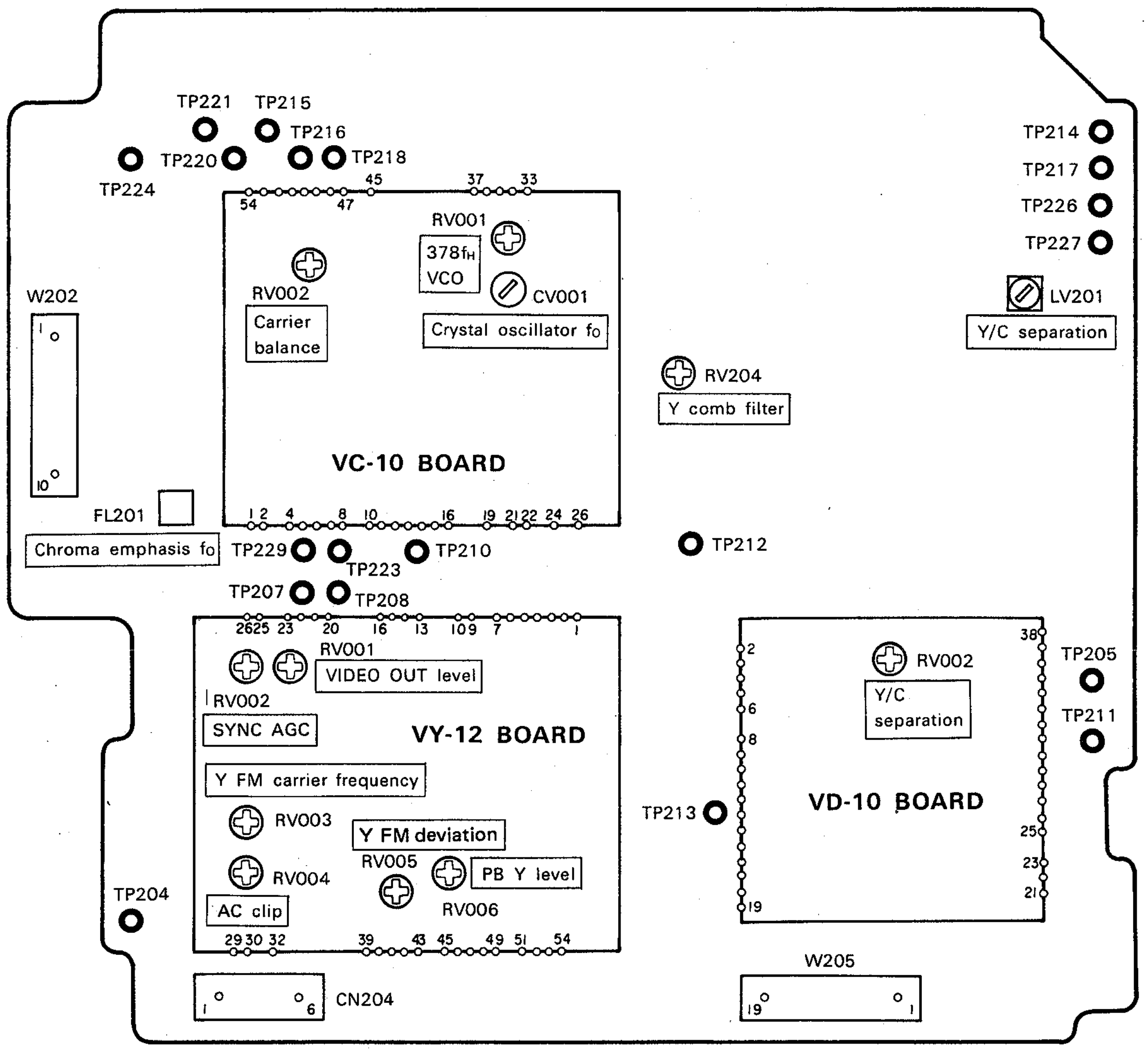
Checking method :

1) Record the signal.
2) Play back the recorded section.
3) Be sure the noise level is less than −66 dBs. *2

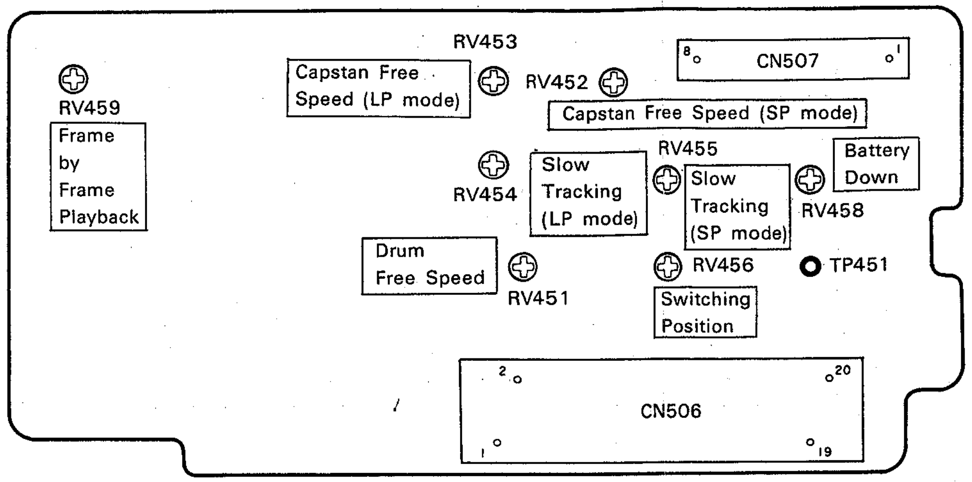
*2 The value when an IHF-A listening sensitivity correction filter is used.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

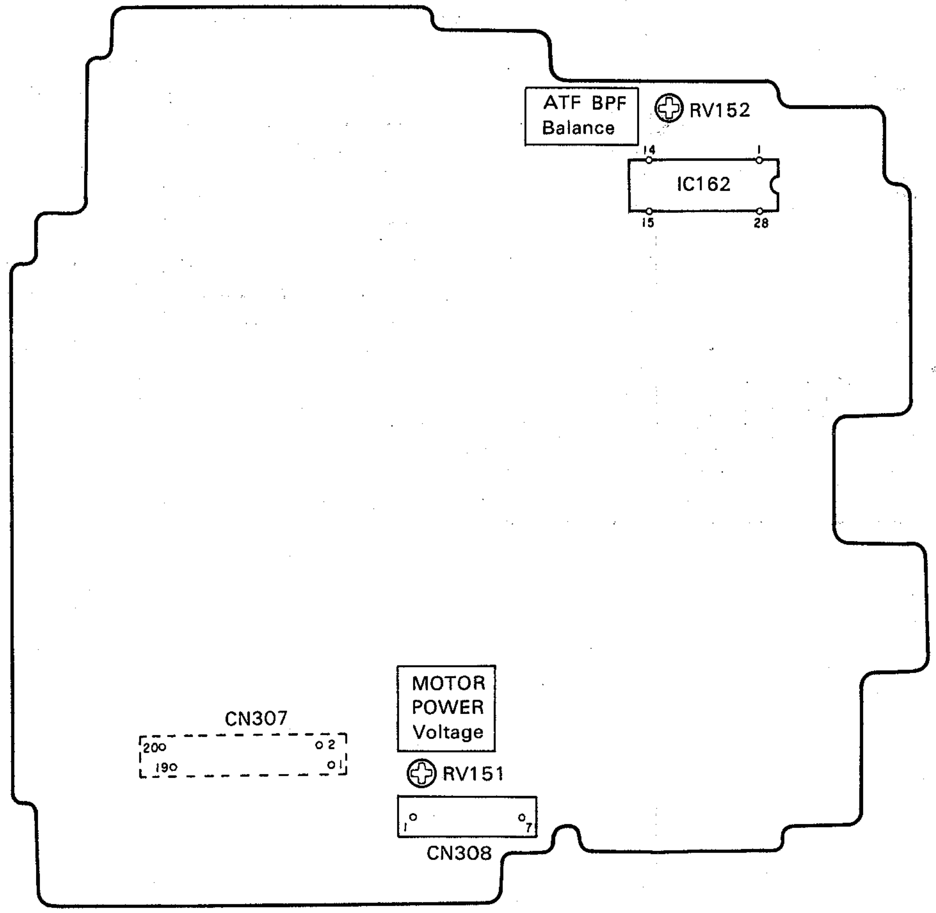
VI-46 BOARD (COMPONENT SIDE)


TP221
TP215
TP216
TP220
TP218
TP224
45
37
33
54
47
RV001
378fH
VCO
CV001
Crystal oscillator fo
RV002
Carrier balance
VC-10 BOARD
W202
FL201
Chroma emphasis fo
TP214
TP217
TP226
TP227
LV201
Y/C separation
RV204
Y comb filter
TP229
TP223
TP210
TP212
TP207
TP208
RV001
VIDEO OUT level
RV002
SYNC AGC
VY-12 BOARD
Y FM carrier frequency
RV003
Y FM deviation
RV004
RV005
PB Y level
AC clip
RV006
RV002
Y/C separation
VD-10 BOARD
TP205
TP211
TP213
TP204
CN204
W205

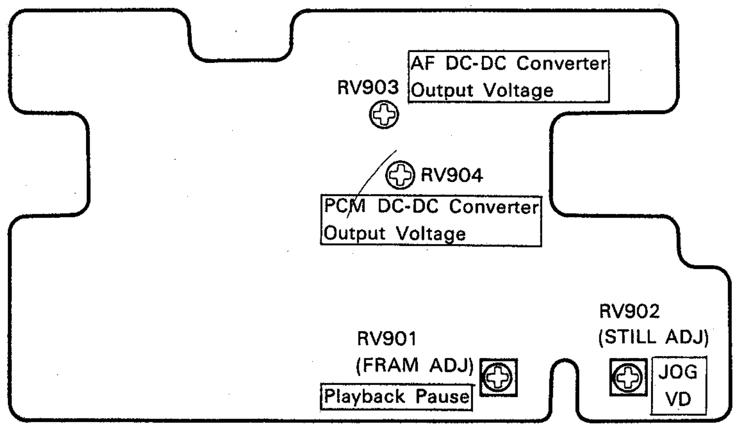
TS-80 BOARD (COMPONENT SIDE)


RV459
Frame by Frame Playback
Capstan Free Speed (LP mode)
RV453
RV452
CN507
Capstan Free Speed (SP mode)
RV455
Battery Down
RV454
Slow Tracking (LP mode)
Slow Tracking (SP mode)
RV458
Drum Free Speed
RV451
RV456
Switching Position
TP451
CN506

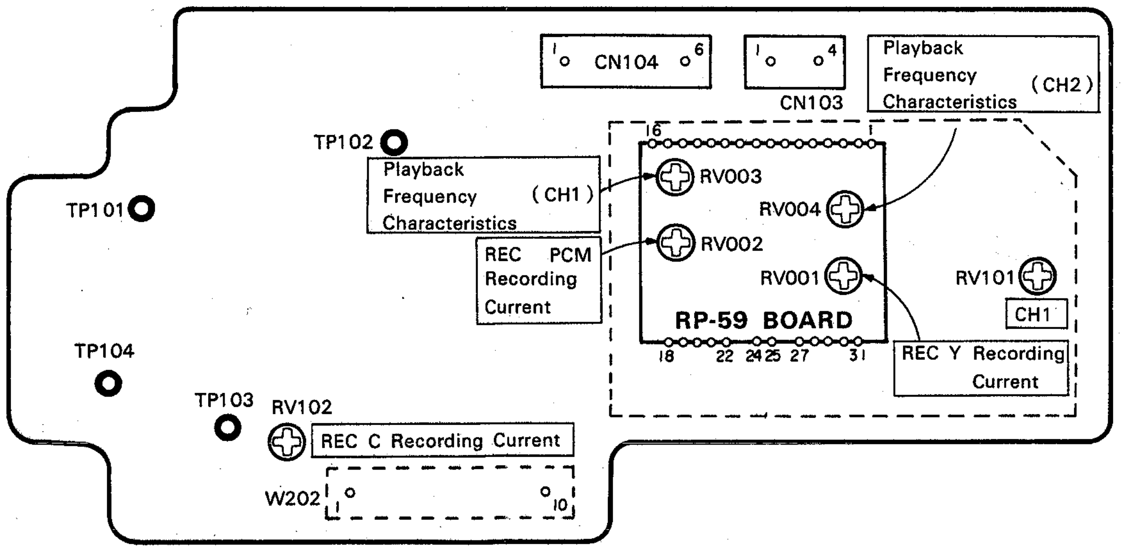
SS-83 BOARD (COMPONENT SIDE)


ATF BPF Balance
RV152
IC162
CN307
MOTOR POWER Voltage
RV151
CN308

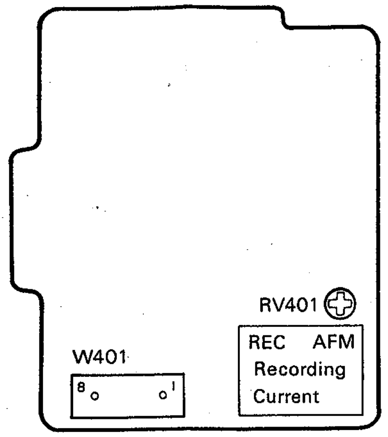
CC-13 BOARD (COMPONENT SIDE)


AF DC-DC Converter Output Voltage
RV903
RV904
PCM DC-DC Converter Output Voltage
RV901
(FRAM ADJ)
Playback Pause
RV902
(STILL ADJ)
JOG VD

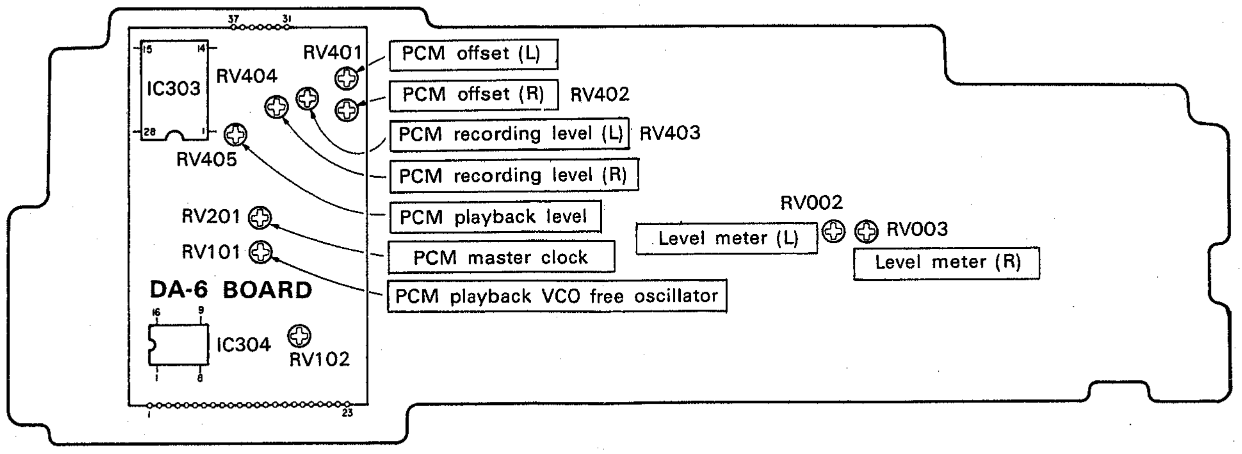
RP-57 BOARD (COMPONENT SIDE)


1 CN104 6
1 4
CN103
Playback Frequency Characteristics (CH2)
TP102
16
Playback Frequency Characteristics (CH1)
RV003
RV004
RV002
REC PCM Recording Current
RV001
RV101
CH1
RP-59 BOARD
18 22 24 25 27 31
REC Y Recording Current
TP101
TP104
TP103
RV102
REC C Recording Current
W202
1
10

AU-45 BOARD (COMPONENT SIDE)


RV401
REC AFM
Recording
Current
W401
8
1

PC-32 BOARD (COMPONENT SIDE)


IC303
RV404
RV401
RV405
PCM offset (L)
PCM offset (R)
RV402
PCM recording level (L)
RV403
PCM recording level (R)
PCM playback level
RV201
RV101
PCM master clock
PCM playback VCO free oscillator
DA-6 BOARD
IC304
RV102
RV002
Level meter (L)
RV003
Level meter (R)